



# Math 7

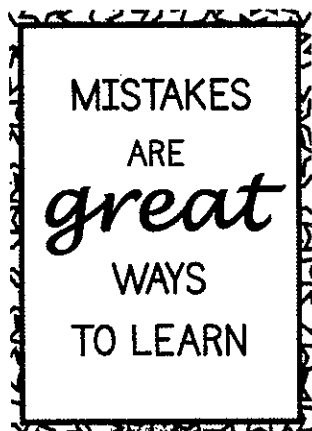
## 1<sup>st</sup> Quarter

Unit 1 – Integers

Unit 2 – Fractions & Decimals

Unit 3 – Expressions

Unit 4 – Equations



Name \_\_\_\_\_

Teacher \_\_\_\_\_

Period \_\_\_\_\_

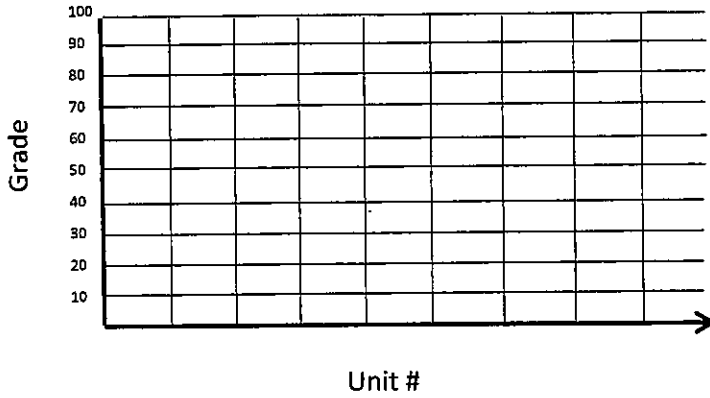


# Grade Tracker

**Tests** ( \_\_\_\_\_ %):

Date:	Unit #:	Grade:

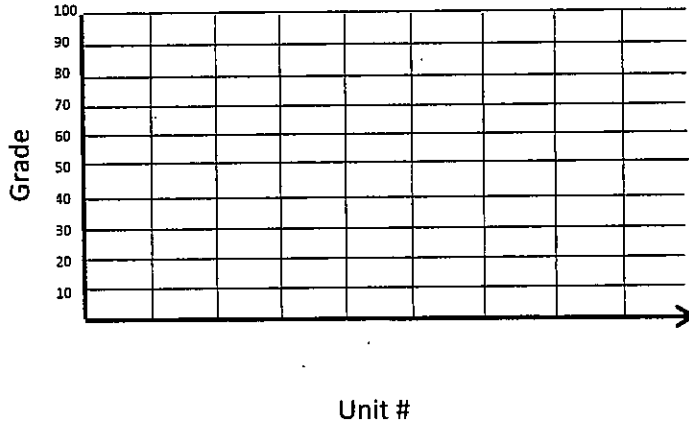
**Test Score:**



**Quizzes** ( \_\_\_\_\_ %):

Date:	Unit #:	Grade:

**Quiz Score:**



**Homework** ( \_\_\_\_\_ %): *Write the date that a homework assignment was not complete.*

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**Parent Signatures:**

I know my child missed \_\_\_\_\_ homeworks. \_\_\_\_\_ Date: \_\_\_\_\_

I know my child missed \_\_\_\_\_ homeworks. \_\_\_\_\_ Date: \_\_\_\_\_

Progress Report: I have seen my child's grades. \_\_\_\_\_ Date: \_\_\_\_\_

I know my child missed \_\_\_\_\_ homeworks. \_\_\_\_\_ Date: \_\_\_\_\_

I know my child missed \_\_\_\_\_ homeworks. \_\_\_\_\_ Date: \_\_\_\_\_

End of 1<sup>st</sup> Quarter: I have seen my child's grades. \_\_\_\_\_ Date: \_\_\_\_\_

**Summary Sheet for \_\_\_\_\_**

Key words to know

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**Summary Sheet for \_\_\_\_\_**

Key words to know

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# Summary Sheet for \_\_\_\_\_

Key words to know

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# Summary Sheet for \_\_\_\_\_

Key words to know

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# UNIT 1

## INTEGERS

		<b>First Day of School</b>
	1	Order of Operations
	2	Introduction to Integers and Absolute Value
	3	Adding Integers
	4	Subtracting Integers
	5	<b>Quiz</b> - Mixed Adding and Subtracting Integers
	6	Multiplying and Dividing Integers
	7	Evaluating Expressions
	8	Word Problems
		Review
		<b>Test</b>



Lesson 1  
Order of Operations

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**AIM: I can evaluate an expression using order of operations.**

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**Vocabulary**

Operations \_\_\_\_\_

Grouping Symbols \_\_\_\_\_

Exponents \_\_\_\_\_

**ORDER OF OPERATIONS**

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**P**

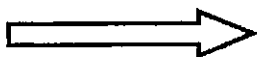
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**E**

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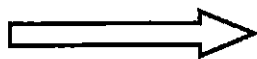
**M/D**

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**A/S**

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**Examples:** Simplify the following problems

1)  $10 - 2 + 3$

2)  $(7 - 5) \cdot 6 + 4$

3)  $15 - 6 \div 2 \cdot 3$

4)  $27 \div 3 - 5$

5)  $10 - 3 \cdot (5 - 2)$

6)  $3^2 + 4 \cdot 3$

7)  $9 - 14 \div 2 + 3$

8)  $\frac{2 \cdot 6 + 3}{11 - 6}$

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**Try These:** Simplify the following problems

1)  $5 - 2 + 7$

2)  $2 + (3 - 2)$

3)  $12 + 3 \cdot 2$

4)  $2^2 - 12 \div 6 - 2$

---

5)  $24 \div 2 \cdot 6$

6)  $10 + 8 \div 2$

7)  $(10 + 8) \div 2$

8)  $\frac{5 \cdot 6 + 2}{12 - 4}$

**Lesson 1 – Classwork/Homework**

Simplify the following expressions:

1)  $12 - 8 \div 2$

2)  $(3 + 4) \div 7$

3)  $(8 - 4) \div 2$

4)  $6 \cdot (4 - 1) \div 2$

5)  $4^2 + (5 - 2)^2$

6)  $5^2 - 3^2$

7)  $4^2 - 12 \div (4 - 2)$

8)  $(2^3 - 2) \div 3 - 2$

9)  $3 \cdot (5 - 2)$

10)  $56 \div (7 \cdot 2) + 1$

11)  $\frac{5 \cdot 4 + 2}{17 - 2 \cdot 3}$

12)  $10 - 4 \cdot (3 - 1)$

13)  $8 \div 4 + 2 \cdot 3$

14)  $14 \div (7 - 5) \cdot 3$

15)  $20 \div 4 + 3 \cdot 6 - 12$

**Extended Response:**

16) Sally was given the problem  $3 + 5 \times 10$ . Her answer to the problem was 80. Is this correct? If not, explain what she did wrong.

**Lesson 2**  
**Introduction to Integers**

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**AIM: I can use integers to represent real life situations.**

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**Warm Up:**

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**Vocabulary**

Integers: \_\_\_\_\_

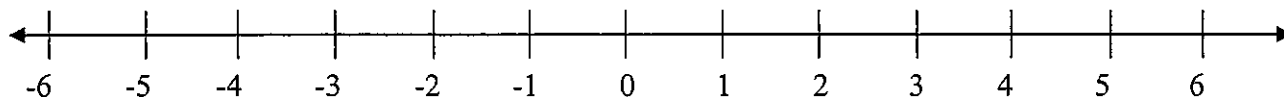
Additive Inverse: \_\_\_\_\_

Absolute Value: \_\_\_\_\_

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**Part I: Introduction to Integers**

**Examples:**



1) Plot the following integers on the number line:

[A] 3      [B] 5      [C] -4      [D] -1      [E] 0      [F]  $-\frac{1}{2}$       [G]  $5\frac{3}{4}$

---

**Inequality Symbols:**

	Less than
	Less than or equal to
	Greater than
	Greater than or equal to
	Equal to

**Write an integer to represent each situation:**

2) \$5.00 off the original price

3) 2 degrees above zero

4) 8 yard gain

5) 4.5 yard loss

6) \$25 deposit

7) \$15.00 withdrawal

8) 42 degrees below zero

9) Income of \$500

10) \$35 deficit

11) 450 feet below sea level

**12) Compare using  $<$ ,  $>$ , or  $=$  to make each inequality true:**

[A]  $-12 \bigcirc 4$

[B]  $-5 \bigcirc -6$

[C]  $-10 \bigcirc 8$

[D]  $5\frac{3}{4} \bigcirc 5\frac{1}{3}$

[E]  $-6 \bigcirc 6$

[F]  $-7 \bigcirc -6$

[G]  $-4 \bigcirc -5$

[H]  $9 \bigcirc 9$

**Order the following integers from least to greatest:**13)  $\{-3, -500, 43, 1, 0, -73, 300\}$ 

\_\_\_\_\_

14)  $\{0, -20, 50, 3, 37, -25, 1000\}$ 

\_\_\_\_\_

**Name the additive inverse of each integer:**

15) -7

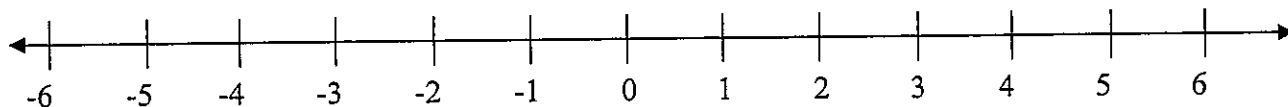
16) 23

17) 0

## PART II: Absolute Value

### Absolute Value Rules:

- 1) Absolute value represents the \_\_\_\_\_ from zero.
- 2) Absolute value will \_\_\_\_\_ be a \_\_\_\_\_ number.
- 3) Treat the absolute value symbol as parentheses. You must do what is \_\_\_\_\_!!!



### Examples:

1) What is the distance from  $-3$  to  $0$ ?

2) What is the absolute value of  $-3$ ?

3) What is the distance from  $3$  to  $0$ ?

4) What is the absolute value of  $3$ ?

5)  $|-5|$

6)  $|9|$

7)  $|-1|$

8)  $|-100|$

9)  $|400 - 100|$

10)  $|-3| + |-1|$

11)  $|-1| + |-3|$

12)  $|3 - 1|$

13)  $|3| + |-1|$

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**Try These:**

14) Which of the following is the largest integer?

- a)  $-300$                       b)  $1$                                       c)  $250$                                       d)  $0$

15) What is the absolute value of  $0$ ?

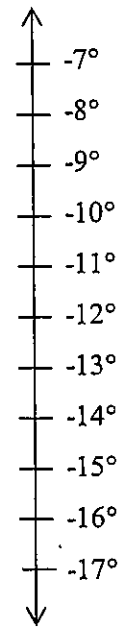
16) The temperature in Alaska at noon is  $-12^\circ$ . Use the number line to answer the following questions

[A] How many degrees warmer is  $-9^\circ$ ?

[B] How many degrees colder is  $-15^\circ$ ?

[C] At midnight, the temperature had dropped  $5^\circ$ . What is the temperature now?

[D] How many degrees would the temperature at noon have to increase to get to  $0^\circ$ ?



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**Lesson 2 – Classwork/ Homework**

**Write an integer for each situation.**

- |                         |                           |                               |
|-------------------------|---------------------------|-------------------------------|
| 1) 6-yard loss          | 2) 8-yard gain            | 3) \$5 off the original price |
| 4) $2^\circ$ above zero | 5) Loss of 15 pounds      | 6) \$35 withdrawal            |
| 7) \$75 deposit         | 8) 1 mile above sea level | 9) 20 ft. below sea level     |

10) A stock opened at \$7 per share on Monday.

[A] The stock's value increased \$3 on Monday. What is the value now?

[B] On Tuesday, the value of the stock decreased by \$5. What is the stock's value now?

[C] By the end of the week, the value of the stock decreased by \$9 from its original value. What is the value at closing on Friday? Use a number line to justify your answer.

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Compare using  $<$ ,  $>$ , or  $=$  to make each inequality true:

11)  $-3 \bigcirc -4$

12)  $-7 \bigcirc 10$

13)  $-1 \bigcirc -15$

14)  $-9 \bigcirc -10$

15)  $5 \bigcirc -7$

16)  $-12.9 \bigcirc -12.6$

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Order the integers in each set from least to greatest.

17)  $\{-3, 5, -7, -2, 0\}$

18)  $\{5, 400, -400, -350, -35\}$

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Name the additive inverse of each integer:

19)  $-7$

20)  $23$

21)  $-400$

22)  $-1$

23)  $3$

24) The absolute value of two numbers that are additive inverses will \_\_\_\_\_ be the same.

a) always

b) sometimes

c) never



Compare using  $<$ ,  $>$ , or  $=$  to make each inequality true.

25)  $|-12| \bigcirc 4$

26)  $|-5| \bigcirc |-6|$

27)  $|-10| \bigcirc 10$

28)  $|15-4| \bigcirc -13$

29)  $|-6| \bigcirc |6|$

30)  $|-7| \bigcirc -6$

31)  $|-4| \bigcirc |-5|$

32)  $9 \bigcirc |10-1|$

---

Order the integers in each set from least to greatest.

33)  $\{-3, 4, |-2|, |5|, 0\}$

34)  $\{-1, -4, |-4|, |0|, 5\}$

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Evaluate

35)  $|5-3|$

36)  $|6| - |2|$

37)  $|-3| + |-3|$

38)  $|0-7|$

39)  $-|6| + 9$

40)  $|12| - 3 + |0|$

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### CHALLENGE

Decide if each of the following is *always true*, *sometimes true*, or *never true* for all integer values of  $x$ .

[a]  $|x| = x$

[b]  $|-x| = x$

[c]  $-|x| = x$

[d]  $|x| = |-x|$

**Lesson 3**  
**Adding Integers**

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**AIM: I can add positive and negative numbers.**

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Warm Up:

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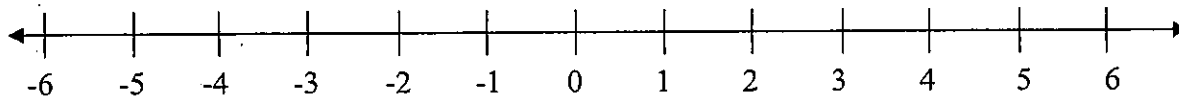
Vocabulary

Sum: \_\_\_\_\_

Commutative Property: \_\_\_\_\_

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**Addition with a number line:**



**For Example:**



1)  $-1 + 3$

- Steps:** 1. Start at -1 on the number line  
2. Move 3 spaces in the positive direction



2)  $-1 + (-3)$

- Steps:** 1. Start at -1 on the number line  
2. Move 3 spaces in the negative direction
- 

**Alternate Method:**

Same Signs  
Add and Keep

Different Signs  
Subtract and Keep the sign of the larger number

**Examples:**

1)  $5 + 2$

2)  $-2 + -9$

3)  $-8 + 1$

4)  $6 + -4$

5)  $6 + (-8)$

6)  $-9 + (-9)$

7)  $-5 + 5$

8)  $-6 + 3$

9)  $-1 + -2 + 8$

10)  $12 + (-6) + (-8)$

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**Try These:**

1)  $-2 + 4$

2)  $(-5) + (3)$

3)  $-2 + (-5)$

4)  $-3 + (7)$

5)  $-6 + 7$

6)  $-3 + -4 + 4$

7)  $-5 + (-1) + 6$

8)  $2 + (-5) + 5$

9)  $-3 + (7) + 3$

10)  $(-7) + -7 + 7$

**Adding Larger Integers:**

**KEEP IN MIND:** If you are adding a positive, the number should get bigger (move in positive direction)

If you are adding a negative, the number should get smaller (move in negative direction)

1)  $-30 + 20$

2)  $40 + -10$

3)  $73 + (-13)$

4)  $-120 + 20$

5)  $-120 + (-20)$

6)  $-47 + (-3)$

7)  $-78 + 80$

8)  $38 + (-24) + 14$

9) The temperature in Vermont is recorded at  $-12^{\circ}$ . At the same time, the temperature in New York is  $15^{\circ}$  warmer. What is the temperature in New York?

---

**More Examples:**

10)  $5 + -9$

11)  $-2 + 7$

12)  $10 + -1$

13)  $-8 + 10$

14)  $7 + (-3)$

15)  $-12 + (-8)$

16)  $-44 + 14$

17)  $-15 + (-5)$

18)  $-9 + 9$

19)  $53 + (-28)$

20)  $-3 + -4$

21)  $-10 + 80$

22)  $-5 + -5 + -5$

23)  $10 + -4 + 5$

24)  $-4 + (-4) + 20$

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**Review (Multiple Choice):**

25) Which of the following integers represents the greatest negative integer?

a)  $-4$

b)  $-1$

c)  $400$

d)  $-400$

26) Which of the following integers represents the distance from  $-3$  to  $5$ ?

a)  $5$

b)  $2$

c)  $8$

d)  $-8$

27) What is the absolute value of  $-7$ ?

a)  $7$

b)  $-7$

c)  $14$

d)  $-14$

### Lesson 3 – Classwork/ Homework

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1)  $-2 + -4$

2)  $2 + 10$

3)  $-7 + 8$

4)  $12 + (-4)$

5)  $-17 + 10$

6)  $-11 + -4$

7)  $-15 + 10$

8)  $20 + (-8)$

9)  $-5 + (-5)$

10)  $8 + (-4) + 6$

11)  $-3 + -6 + 4$

12)  $-2 + -1 + -9$

13)  $8 + (-10) + 2 + (-5)$

14)  $12 + (-26) + 4 + 26$

15)  $12 + (-12) + 47$

16) A submarine is 350 feet below sea level, over the course of the next three hours, the submarine rose 120 feet. What is the submarine's distance below sea level?

17) An elevator starts on the ground floor. If it goes up 3 floors, then down 2 floors, and finally up 6 floors, what floor is it on?

18) The sum of  $-7$  and what number is  $2$ ?

19) The temperature in city A is  $-35^{\circ}$ . If the temperature in city B is the additive inverse of  $-35^{\circ}$ , how much warmer is city B?

Lesson 4  
Subtracting Integers

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**AIM: I can subtract positive and negative numbers.**

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Warm Up:

Vocabulary

Difference:

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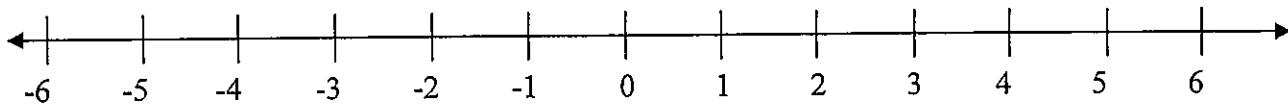
**Subtraction with a number line:**

To subtract an integer, add its opposite (inverse)

$$a - b = a + (-b)$$

or

$$a - (-b) = a + (b)$$



**For Example:**

1)  $-1 - 3$



**Steps:**

1. Start at  $-1$  on the number line
2. Move 3 spaces to the \_\_\_\_\_

2)  $-1 - (-3)$



**Steps:** 1. Re-write the problem using addition

2. Start at  $-1$  on the number line
  3. Move 3 spaces to the \_\_\_\_\_
-

**Alternate Method:**

Same Signs  
Add and Keep

Different Signs  
Subtract and Keep the sign of the larger number

**Examples:**

1)  $-2 - 4$

2)  $5 - (-3)$

3)  $-2 - (-5)$

4)  $-3 - (7)$

5)  $-6 - 7$

6)  $-3 - (-4) - 4$

7)  $-5 - (-1) + 6$

8)  $2 - (-5) - 5$

9)  $-3 - (4) + 3$

10)  $-12 - (-12)$

12) The temperature in Chicago is  $38^{\circ}$ . It is  $40^{\circ}$  colder in North Dakota. What is the temperature in North Dakota?

13) The temperature in Maine is  $-21^{\circ}$ . At the same time, the temperature in Texas is  $79^{\circ}$ . What is the difference in the two temperatures?

**KEEP IN MIND:** When you subtract a negative you are really adding. \*\*  $-(-10) = +10$

**Try These:**

14)  $-30 - 20$

15)  $40 - -10$

16)  $73 - (-13)$

17)  $-120 - 20$

18)  $-120 - (-20)$

19)  $-47 - (-3)$

20)  $-78 - 80$

21)  $38 - (-24) + 14$

22) The temperature in San Jose is recorded at  $82^{\circ}$ . At the same time, the temperature in Seattle is  $95^{\circ}$  colder. What is the temperature in Seattle? (Draw a picture of a thermometer to help.)

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23) The temperature in Michigan is  $-6^{\circ}$ . At the same time, the temperature in New Mexico is  $94^{\circ}$ . What is the difference in the two temperatures? (Draw a picture of a thermometer to help.)

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24) Michael is 8 years old. His sister Anna is 7 years older than him, and his brother Rocco is 11 years younger than his sister. How old is his brother?

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**Lesson 4 – Classwork/ Homework**

1)  $-4 - 5$

2)  $5 - (-3)$

3)  $-9 - 2$

4)  $-10 - (-5)$

5)  $-12 - (-3)$

6)  $8 - 4$

7)  $7 - 10$

8)  $-15 - (-1)$

9)  $20 - 32$



10)  $-9 - (-6)$

11)  $-3 - 5 + 8$

12)  $-3 - 3 - 3$

13) Write  $8 - 2$  as many ways as you can.

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

Can you think of anymore?

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14) Your friend is having trouble simplifying  $20 - (-38)$ . Write an explanation to help your friend solve the problem.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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15) Ryan has \$75 in his bank account. He withdraws \$48, and then deposits \$12. What is Ryan's new balance?

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**REVIEW: SHOW ALL WORK**

16)  $-|-3| + |4|$

17)  $|-4| + |3|$

18)  $|-4 + 3|$

19)  $|-a|$

Lesson 5

Mixed Adding and Subtracting Integers

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**AIM: I can add and subtract positive and negative numbers.**

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Warm Up:

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**Vocabulary Review**

Sum: \_\_\_\_\_

Difference: \_\_\_\_\_

Additive Inverse: \_\_\_\_\_

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**Examples - Use the commutative property and the inverse property to simplify:**

1)  $30 + 45 + -30$

2)  $-53 + 7 + 53$

3)  $125 + (-73) + 125 + 73$

4)  $21 + 47 + (-47) + -4$

5)  $34 + 21 + -34$

6)  $\left(-\frac{5}{8}\right) + (-72) + \left(\frac{5}{8}\right)$

7)  $83 + -83 + 27 + -27$

8)  $-20 + 30 + (-20) + 90$

9)  $432 + 68 + 11 + -500$

**Try These:**

---

1)  $3 + 10$

2)  $-7 + 5$

3)  $-5 - 6$

4)  $8 + (-4)$

5)  $-15 + 2$

6)  $-8 - 8 - 8$

7)  $18 - 9$

8)  $25 + (-13)$

9)  $-6 + (-6)$

10)  $-7 + 12$

11)  $-16 + 16$

12)  $-12 + 7 + (-5)$

13)  $9 + (-15) + 3 + (-5)$

14)  $14 + (-26) + (-13) + 7$

15)  $15 - (-2) + 2$

**Lesson 5 – Classwork/ Homework**

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1)  $6 + 8$

2)  $-7 + (-8)$

3)  $-6 + 5$

4)  $-2 + 14$

5)  $-7 - 6$

6)  $-9 - 12$

7)  $-15 - (-10)$

8)  $22 + (-8)$

9)  $-3 + (-3)$

10)  $11 + (-6) + 6$

11)  $-3 + (-8) + 4$

12)  $-2 + -2 + -2$

13)  $-4 - 3 - 2$

14)  $13 + (-13) + 4 + (-4)$

15)  $18 - (-6)$

16)  $-2 + -6$

17)  $-12 - 6$

18)  $-9 + 2$

19)  $-80 + (-16)$

20)  $-26 - (-12)$

21)  $-30 + (-30)$

22)  $-15 + 16$

23)  $18 + (-10) + 3 - (-5)$

24)  $-11 + -3$

25)  $-5 - 6 - 7 - 8$

26)  $-13 + -6 + 8$

27)  $-70 - 10 + -9$

Lesson 6  
Multiplying and Dividing Integers

**AIM: I can identify when a product or quotient will be positive or negative.**

**Warm Up:**

**Vocabulary**

Product: \_\_\_\_\_

Quotient: \_\_\_\_\_

Multiplicative Inverse: \_\_\_\_\_

Undefined: \_\_\_\_\_

**Rules:**

**1) Count the negative signs**

Odd number of negative signs - Answer Negative

Even number of negative signs - Answer Positive

**2) Multiply or Divide**

Any number multiplied by zero is \_\_\_\_\_

Any number divided by zero is \_\_\_\_\_

**Examples:**

1)  $-5 \cdot -2$

2)  $-8 \cdot 4$

3)  $8 \cdot -4$

4)  $-25 \div 5$

5)  $25 \div -5$

6)  $(7)(0)$

7)  $\frac{8}{0}$

8)  $\frac{-24}{8}$

9)  $(-1)^4$

10)  $-1 \cdot -3 \cdot -4 \cdot 2$

**Try These**

1)  $-15 \cdot -2$

2)  $(-3)(10)$

3)  $56 \div -7$

4)  $-2 \cdot 1 \cdot -3$

5)  $-2 \cdot -6 \cdot 2 \cdot -1$

6)  $(-1)^3$

7)  $(-1)^{246}$

8)  $\frac{-81}{-9}$

9)  $-12 \div -4$

10)  $\frac{28}{-7}$

11)  $-2(-3)$

12)  $-5 \cdot 5 \cdot 2$

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**Lesson 6 – Classwork/ Homework**

**Multiply:**

1)  $(-4)(3)$

2)  $(-5)(-8)$

3)  $-5 \cdot 7$

4)  $16(-3)$

5)  $(-50)(-2)$

6)  $(-12)(-1)$

7)  $(-9)(-8)$

8)  $(-15)(-3)$

9)  $(16)(-4)$

10)  $(-3)(-1)$

11)  $(-1)(-1)(-1)$

12)  $-8 \cdot 0 \cdot 2$

---

**Divide:**

13)  $35 \div -5$

14)  $\frac{16}{-4}$

15)  $\frac{-20}{-5}$

16)  $-21 \div 7$

17)  $\frac{(-8)}{0}$

18)  $\frac{(-32)}{8}$

19)  $270 \div (-90)$

20)  $-55 \div 11$

21)  $\frac{400}{-200}$

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22) An oil rig is drilling into the ground at a rate of 7 feet per minute. What integer represents the position of the oil rig after 22 minutes?

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23) Monica has 100 shares of stock worth \$8 each. If the price drops \$3 per share, what integer represents the change of Monica's investment?

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**REVIEW: SHOW ALL WORK**

24)  $6 + -12$

25)  $-25 + -7$

26)  $40 - (-20)$

**Lesson 7**  
**Evaluating Expressions**

---

**AIM: I can substitute numbers for variables and simplify using the order of operations.**

**Warm Up:**

---

**Vocabulary**

Algebraic Expression: \_\_\_\_\_

Variable: \_\_\_\_\_

Evaluate: \_\_\_\_\_

Substitution Property: \_\_\_\_\_

---

**STEPS:**

- 1) Write the original problem.
  - 2) Rewrite the expression with the values of each variable substituted in parentheses.
  - 3) Simplify by using order of operations. (SHOW ALL WORK)
- 

**Examples:** Evaluate each expression if  $n = 4$ ,  $p = 3$ , and  $t = 6$

1)  $3n + p$                       2)  $t^2 - 2p$                       3)  $3p - n + 4$                       4)  $\frac{npt}{3}$

5)  $-6.1p$                       6)  $1.5(p + n)$                       7)  $4n + 3p - 2t$                       8)  $12 \div 3n + p$



---

**Try These:** Evaluate each expression if  $n = 2$ ,  $p = -4$  and  $t = 3$

1)  $5n + p$

2)  $-2.4t$

3)  $3(p - n) + 4$

4)  $p \div (t - 1)$

5)  $\frac{p+n}{t}$

6)  $n - p + t$

7)  $\frac{p^2 + 4}{3t + 1}$

8)  $p - n^t$

---

**USE THE GIVEN FORMULA TO EVALUATE:**

9) Drew drove to Chicago at an average rate of 50 mph. The trip took him 17 hours. How far did Drew drive?

*Distance = Rate  $\times$  Time*

---

### Lesson 7 – Classwork/ Homework

---

**Evaluate each expression if  $x = 2$ ,  $y = 3$  and  $z = 5$**

1)  $2x + z$

2)  $z - 2x$

3)  $3x - y + 3$

4)  $\frac{5xy}{z}$

5)  $(xy)^2$

6)  $3x^2$

7)  $\frac{x^2 + 4}{3y - 5}$

8)  $6x^2 - z$

---

**USE THE GIVEN FORMULA TO EVALUATE:**

9) John is deciding whether he wants to install a rectangular pool or a cylindrical pool in his back yard. The pool company shows him two models, one a rectangular prism and one a cylinder, that are the same price. He wants to determine which pool would hold a larger volume of water.

[a] The rectangular prism pool has a width of 10 feet, a length of 20 feet, and a height of 5 feet. Using the formula for volume of a rectangular prism, determine the volume of this model.

$$V = lwh$$

[b] The cylindrical pool has a radius of 10 feet, and a height of 4 feet. Using the formula for volume of a cylinder, estimate the volume of this model. (use 3 as an estimate for  $\pi$  at the very end of the problem)

$$V = \pi r^2 h$$

[c] Which pool has a greater volume? By how much?

10) A rectangular prism has a length of 5 inches, a width of 3 inches and a height of 7 inches. Find the surface area of the rectangular prism.

$$\text{Surface Area} = 2lw + 2lh + 2wh$$

**Lesson 8**  
**Word Problems**

---

**AIM: I can solve word problems using expressions.**

---

**Warm Up:**

---

1) One night in January, the temperature in Alaska is  $-16^{\circ}\text{F}$ . The next day, the temperature is half of what it was the night before. What is the temperature?

---

2) During the fourth quarter, the Patriots were penalized 3 times for the same amount for a total of 45 yards. Write a division sentence to represent this equation. Then find the number of yards for each penalty.

---

3) Joey owes his friend \$10. He pays back \$4, and then borrows another \$17. How much money does Joey owe his friend?

---

4) A submarine is 800 feet below sea level. Over the course of the next few hours, the submarine ascends 200 feet, descends 400 feet, ascends 200 feet and descends 900 feet. How far below sea level is the submarine?

---

5) The temperature at midnight is recorded at  $-11^{\circ}$ . Over the next ten hours, the temperature increased  $13^{\circ}$ . What is the temperature after this ten hour period?

---

6) An elevator started on the 9<sup>th</sup> floor goes up 2 floors, then down 5 floors, then up 3 floors, then down 6 floors. On what floor is the elevator now?

---

7) The temperature in Anchorage, Alaska is recorded at  $-17^{\circ}$ . At the same time, the temperature in Los Angeles, California is  $97^{\circ}$  warmer than in Anchorage. What is the temperature in Los Angeles?

---

8) In Buffalo, New York, the temperature was  $-14^{\circ}\text{F}$  in the morning. If the temperature dropped  $7^{\circ}\text{F}$  at 12:00pm, what is the temperature now?

---

9) A submarine was situated 750 feet below sea level. If it descends (goes down) 200 feet, what is its new position?

---

10) A submarine was situated 800 feet below sea level. If it ascends (goes up) 50 feet per hour, what is its new position after 5 hours?

## Lesson 8 – Classwork/ Homework

---

1) Maggie deposits \$35 in the bank. She then withdraws \$10 on Monday, deposits \$15 on Tuesday, and then withdraws \$14 on Wednesday. How much does Maggie have left in the bank?

---

2) A submarine was situated 450 feet below sea level. If it descends (goes down) 300 feet, what is its new position?

---

3) A stock opens at \$450 per share on Monday. The chart displays the change over the course of the next few days. What is the value of the stock per share at closing on Friday?

Day	Change
Monday	+\$21
Tuesday	-\$13
Wednesday	-\$8
Thursday	+\$15
Friday	-\$6

---

4) In the Sahara Desert one day it was  $136^{\circ}\text{F}$ . In the Gobi Desert a temperature of  $-50^{\circ}\text{F}$  was recorded. What is the difference between these two temperatures?

---

5) Mt. Everest, the highest elevation in Asia, is 20,320 feet above sea level. The Dead Sea, the lowest elevation, is 282 below sea level. What is the difference between these two elevations?

---

6) A runner jogs 14 miles in one direction. He then turns around and jogs 18 miles in the opposite direction.

[a] How far is the runner from his starting position?

[b] How far did the runner jog in total?

7) A scuba diver is 180 feet below sea level. She ascends 32 feet, and then descends 48 feet. What is her current depth?

---

8) An explorer jumps out of a plane and parachutes into a cave. He jumped out of the plane at 300 feet above sea level, and lands at the bottom of the cave, which is 900 feet below sea level.

[a] How far was the explorer's jump?

[b] Once in the cave, the explorer continues deeper into the cave. If he climbs to the lowest point in the cave, and records the depth at 1524 feet below sea level, how far down did he climb from where he landed?

---

9) A roller coaster at Six Flags has a largest drop of -276 feet. A roller coaster at Dorney Park has a largest drop of -239 feet. How much bigger is the drop at the roller coaster at Six Flags?

---

10) The Volunteer Club raked leaves at several senior citizens' homes in the neighborhood. If each group of three students could remove 8 cubic meters of leaves in one hour, find an integer to represent the number of cubic meters of leaves 12 students could remove in 3 hours?

**MATCHING:**

\_\_\_\_ 1) Integer

\_\_\_\_ 2) Operations

\_\_\_\_ 3) Commutative Property

\_\_\_\_ 4) Inverse

\_\_\_\_ 5) Expression

a. States that  $a + b = b + a$ 

b. Addition, subtraction, multiplication, and division

c. Negative opposite

d. A mathematical sentence with no equal sign

e. The set of whole numbers and their negative opposites

**SIMPLIFY: NO CALCULATOR**

6)  $3 + 2(2 + 1)$

7)  $5 \cdot 2 + 4$

8)  $(8 - 6) \div 2 + 1$

9)  $3 - (-2)$

10)  $-17 + 3$

11)  $-12 + -3$

12)  $-3 - (-10)$

13)  $(-2)^2$

14)  $-2^2$

15)  $\frac{-48}{-4}$

16)  $-3 \cdot (-12)$

17)  $(16 - 4) \div -2$

18)  $(4 + 2)^2 - (-12)$

19)  $(-1)^3 + 3 - 2$

20)  $(-3)(-2)(5)$

21)  $(-3 - 6) + (3)(-2)$

22)  $-5 - 15 \div -3$

23)  $2 - (3 + 6 \div -2)$

24)  $|-9|$

25)  $|14|$

26)  $|-40|$

27)  $|-10|$  28)  $|100|$

29)  $|-4| + |-1|$

30)  $|-4 - 1|$

31)  $|3 - 1|$

32)  $|3| + |-1|$

---

**COMPARE:**

33)  $|-5| \bigcirc 4$

34)  $|6| \bigcirc |-6|$

35)  $|-11| \bigcirc 10$

36)  $|13| \bigcirc -13$

---

**REPRESENT EACH SITUATION AS AN INTEGER:**

37) \$10 withdrawal \_\_\_\_\_

38) 20 yard gain \_\_\_\_\_

39)  $8^\circ$  temperature drop \_\_\_\_\_

40) \$15 deposit \_\_\_\_\_

---

**EVALUATE THE FOLLOWING IF:  $x = 3$ ,  $y = 4$ , and  $z = -2$** 

41)  $2y - 2x$

42)  $y^2$

43)  $1.3xz$

44)  $y + z$

---

45) An elevator begins on the 4<sup>th</sup> floor and goes up 2 floors and then down 3 floors. What floor is the elevator on?

---

46) The temperature was  $20^\circ$  at noon. The temperature dropped at a rate of  $8^\circ$  per hour. What is the temperature at 3:00pm? Show all work.

---

47) Find the difference between  $37^\circ$  and  $-12^\circ$ . Prove your answer on a number line.



48) Order from least to greatest {20, -12, -30, 0, 26, -15}

---

49) John travels for 3 miles at an average speed of 40 mph, how far does he travel in this 3 hour span?

*Distance = Rate • Time*

---

50) A school policy requires that there be at least one chaperone for every 6 students on a field trip. How many chaperones are required for a field trip with 42 students?

---

51) What is the name of the answer to an

Addition problem: \_\_\_\_\_

Subtraction problem: \_\_\_\_\_

Multiplication problem: \_\_\_\_\_

Division problem: \_\_\_\_\_

---

52) The temperature on Monday morning was  $-12^{\circ}$  using the chart determine what the temperature is Friday evening.

Day	Change
Monday	- 6
Tuesday	3
Wednesday	4
Thursday	-2
Friday	-3

# UNIT 2

## FRACTIONS AND DECIMALS

### USING THE CALCULATOR

	<b>Date</b>	<b>Lesson</b>	
		1	Introduction to Decimals/ Adding, Subtracting, Multiplying, & Dividing Decimals with Integers
		2	Using the Calculator/ Adding and Subtracting Fractions with Integers Multiplying and Dividing Fractions with Integers/ Dividing Complex Fractions
		3	Converting Rational Numbers to Decimals/ Comparing and Ordering Rational Numbers

Lesson 1

Add, Subtract, Multiply, Divide Decimals with Integers

---

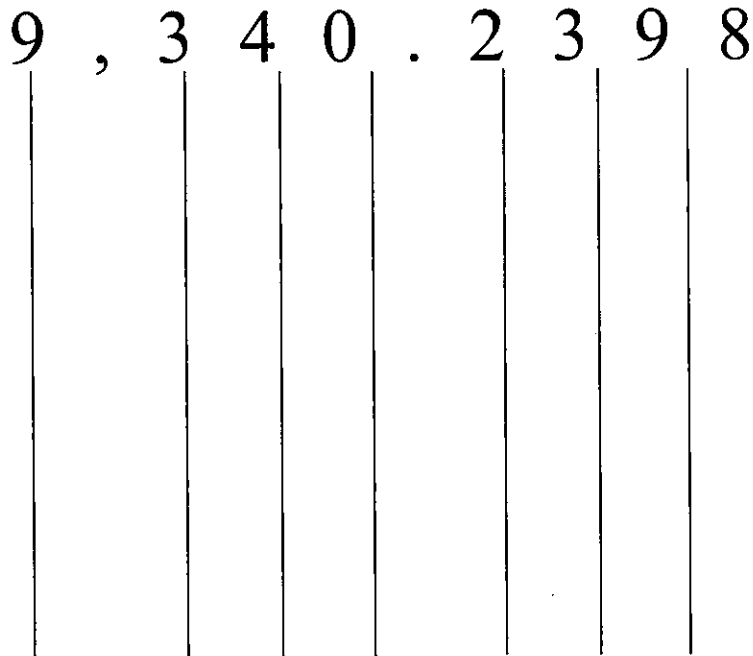
Aim: I can round, add, subtract, multiply, divide decimals and fractions with integers

Warm Up:

---

**PLACES**

FILL IN THE PLACE VALUE IN THE APPROPRIATE SPACE:



**Rounding**

Round the following decimals to the nearest tenth:

8. 3.19      9. 4.921      10. 5.909      11. 89.985      12. 12.487

---

Round the following decimals to the nearest hundredth:

13. 3.297      14. 8.9294      15. 75.989      16. 8.495      17. 18.783

---

Round the following decimals to the nearest thousandth:

18. 3.2978      19. 2.4234      20. 52.0091      21. 18.1236      22. 21.7253

**Adding/ Subtracting Decimals:**

Rules:

- 1) Line up the decimals
- 2) Add or subtract

**Find the Sum or Difference (Round to the tenths):**

---

1) 
$$\begin{array}{r} 2.3 \\ + 0.4 \\ \hline \end{array}$$

2) 
$$\begin{array}{r} 0.13 \\ + 3.87 \\ \hline \end{array}$$

3) 
$$\begin{array}{r} 93.95 \\ - 45.2 \\ \hline \end{array}$$

4)  $49.2 + 5.63$

5)  $9.4 - 4.08$

6)  $16.2 - (-24.9)$

**Multiplying Decimals:**

Rules:

- 1) Ignore the decimals in the numbers
- 2) Multiply the given numbers as if they were whole numbers
- 3) Count the places after the decimal in each number
- 4) Count that number of places from the right side in your answer

**Find each product(Round to the nearest tenths):**

---

1) 
$$\begin{array}{r} 1.02 \\ \times 3.6 \\ \hline \end{array}$$

2) 
$$\begin{array}{r} 58 \\ \times -2.1 \\ \hline \end{array}$$

3) 
$$\begin{array}{r} -4.15 \\ \times -2.6 \\ \hline \end{array}$$

4)  $(-8.7)(0.45)$

5)  $(12.15)(3.5)$

6)  $(-0.91)(-2.7)$

---

7) An apple costs \$.60. How much will it cost to purchase a dozen apples?

**Dividing Decimals:**

Rules:

- 1) Rewrite each division problem as long division.
- 2) Do not start dividing until you change the outside number to a whole number
- 3) Move the inside decimal the same amount of places as you did the outside number
- 4) Write the decimal **up** into the answer
- 5) Divide the two numbers as whole numbers to find the quotient

**Find each quotient(Round to the nearest tenths):**

---

1)  $7.74 \div 1.8$

2)  $19.2 \div -3.2$

3)  $83.7 \div 2.7$

---

**Word Problems:**

4) Peanuts costs \$1.75 per jar. How many jars can you buy with \$14?

---

5) You spend \$13.92 for fabric. Each yard costs \$4.35. How many yards of fabric do you buy?

---

6) After digging up lilac bushes in a garden, a landscape architect uses sod to cover the ground. The sod costs \$2.25 per yard. He pays \$31.50. How much sod does he buy?

---

7) A car travels 360.25 miles. It uses 13.1 gallons of gas. How much miles per gallon of gas does the car travel?

---

Lesson 1 –Homework

Breakfast Menu

1 Egg	\$1.75
Toast	\$0.99
Bacon	\$.50
Milk	\$2.25

1) Michelle wants to order 2 eggs with bacon. How much will it cost?

2) A family orders 4 eggs, milk, and 2 pieces of bacon. How much will it cost?

3) a) If Michael orders 1 egg, toast, bacon, and milk, how much will it cost?

b) Michael gives a \$10 bill to the cashier. How much **change** will he receive?

4)  $1.02 \cdot 6.9 = 7038$

---

5)  $0.6 \cdot -9.312 = -55872$

---

6) Each trip on a ride at a carnival costs \$1.25. If Tara goes on 4 rides, how much will it cost her?

7) Alicia paid \$1.32 for a bag of potato chips. The chips cost \$0.55 per pound. How much does the bag of potato chips weigh?

8) Nina and three friends ate lunch at a café. They decided to split the bill evenly. The total bill was \$17.84. How much was each person's share?

9) You buy five movie tickets for a total of \$23.75. Your friend gives you \$5 for **one** of the tickets. How much change should you give your friend?

## Lesson 2

### Add, Subtract, Multiply and Divide Fractions and mixed numbers with integers

**Aim:** I can add, subtract, multiply and divide fractions and mixed numbers with integers.

**Warm Up:**

### Introduction to Calculator Fractions and Decimals

#### How to input fractions into the calculator

You must use the  $\boxed{\frac{a}{b}}$  button!

Use  $\boxed{(-)}$  if you need to make a number negative.

- Simple fractions such as  $\frac{1}{2}$  are entered as:

$\boxed{1}$   $\boxed{\frac{a}{b}}$   $\boxed{2}$

- Mixed numbers such as  $-1\frac{1}{2}$  are entered as:

$\boxed{(-)}$   $\boxed{1}$   $\boxed{\frac{a}{b}}$   $\boxed{1}$   $\boxed{\frac{a}{b}}$   $\boxed{2}$

- To change a mixed number to an improper fraction:

$\boxed{\text{Shift}}$   $\boxed{\frac{a}{b}}$



**Example 1:**  $\frac{1}{4} + \frac{2}{3} =$

Enter the following:  $\boxed{1}$   $\boxed{\frac{a}{b}}$   $\boxed{4}$   $\boxed{+}$   $\boxed{2}$   $\boxed{\frac{a}{b}}$   $\boxed{3}$

**TRY IT!!** The correct answer is \_\_\_\_\_

**Example 2:**  $1\frac{3}{4} + 2\frac{1}{3} =$

Enter the following: 

1	$a\frac{b}{c}$	3	$a\frac{b}{c}$	4	+	2	$a\frac{b}{c}$	1	$a\frac{b}{c}$	3
---	----------------	---	----------------	---	---	---	----------------	---	----------------	---

**TRY IT!!** The correct answer is \_\_\_\_\_

**Solve the following using your calculator.**

1)  $\frac{1}{6} + \frac{2}{3} =$

2)  $0.98 - 6.3 =$

3)  $5\frac{1}{4} - 2\frac{2}{3} =$

---

4)  $9.65 \times 78.54 =$

5)  $-\frac{3}{10} \div 4\frac{1}{3} =$

6)  $9\frac{1}{8} \times 2\frac{2}{5} =$

---

**Convert the following into a mixed number using your calculator.**

7)  $\frac{16}{6} =$

8)  $-\frac{223}{5} =$

9)  $-\frac{654}{25} =$

---

**Convert the following into an improper fraction using your calculator.**

10)  $2\frac{1}{7} =$

11)  $-8\frac{5}{14} =$

12)  $-22\frac{4}{5} =$

---

**Review**

Numerator: \_\_\_\_\_

Denominator: \_\_\_\_\_

Mixed Number: \_\_\_\_\_

Improper Fraction: \_\_\_\_\_

---



## Add/Subtract Fractions

Rules:

- 1) Find a common denominator
- 2) Add or subtract numerators
- 3) Keep the denominator the same
- 4) Simplify fraction into lowest terms

### Examples:

1)  $\frac{1}{8} + \frac{5}{8}$

2)  $\frac{7}{10} - (-\frac{1}{10})$

3)  $7\frac{2}{3} - 1\frac{1}{6}$

4)  $\frac{1}{7} + \frac{5}{9}$

5)  $16\frac{2}{9} + 1\frac{7}{10}$

6)  $-6\frac{2}{5} + 1\frac{4}{5}$

7) To make lemonade, you use  $3\frac{1}{3}$  cups of lemon concentrate and  $1\frac{1}{3}$  cups of water. How many cups of lemonade do you make?

8) You have 4 cups of flour and you need to use  $1\frac{3}{4}$  cups of flour for a cookie recipe. How much flour will you have left?

9) Mark drives his car  $37\frac{1}{2}$  miles west on the Long Island Expressway, however he drove past his exit. He turns around and goes east for  $4\frac{1}{3}$  miles to his exit. Had he not missed his exit, how far would Mark have had to travel on the highway?

10) Jessica's car has a gas tank that holds  $18\frac{3}{5}$  gallons of gas. Jessica knows that the tank only has  $3\frac{1}{3}$  gallons of gas left in it. How much gas would it take to fill up the gas tank?

**Important Vocabulary:**

Reciprocal: \_\_\_\_\_

**Multiplying Fractions By Hand**

Rules:

1. Convert Mixed Numbers to Improper Fractions (if necessary)
2. Simplify each fraction
3. Multiply straight across

**Find each product:**

1)  $\frac{1}{2} \cdot \frac{2}{3}$

2)  $-\frac{1}{4} \cdot \frac{2}{5}$

3)  $-2\frac{1}{2} \cdot -1\frac{3}{5}$

**Dividing Fractions By Hand**

Rules:

1. Convert Mixed Numbers to Improper Fractions (if necessary)
2. Change to multiplication of the reciprocal
3. Follow multiplication steps

**Find each quotient:**

4)  $\frac{1}{4} \div (-\frac{3}{8})$

5)  $-\frac{3}{5} \div -\frac{2}{3}$

6)  $\frac{5}{16} \div 2\frac{1}{2}$

**Word Problems**

**\*\*In word problems, when dealing with fractions the word 'OF' means to MULTIPLY\*\***

Example 1:  $\frac{3}{5}$  of 8

Example 2:  $\frac{2}{3}$  of  $\frac{9}{10}$

7)  $\frac{4}{5}$  of the 12,000 people at the Met game are wearing Mets hats. How many people are wearing Met hats?

8) Anthony ate  $\frac{4}{5}$  of an Apple Pie. The next day, Kyle ate  $\frac{1}{2}$  of the remaining pie. How much did Kyle eat?

**Complex Fraction** - a fraction where the numerator, denominator, or both contain a fraction.

---

Change the following mixed numbers to an improper fraction.

a)  $2\frac{1}{4}$

b)  $5\frac{4}{5}$

c)  $8\frac{3}{10}$

---

**Examples:**

Solve each of the following and reduce your answers to lowest terms.

1.  $\frac{1}{3} \div \frac{2}{5}$

2.  $\frac{\frac{9}{10}}{\frac{3}{4}}$

3.  $\frac{\frac{1}{2} + \frac{2}{5}}{3}$

---

4.  $10 \div 2\frac{2}{5}$

5.  $\frac{8}{9} \div -3$

6.  $\frac{2\frac{1}{6}}{1\frac{4}{9}}$

---

7. Luke walked his dog  $\frac{3}{4}$  mile every day. It takes him  $\frac{1}{3}$  hour to walk that distance. How fast does he walk in miles per hour?

**Try These:**

1.  $\frac{\frac{2}{3}}{\frac{2}{5}}$

2.  $\frac{\frac{1}{8}}{-\frac{1}{6}}$

---

3.  $\frac{1}{2} \times 1\frac{1}{2}$

4.  $\frac{\frac{1}{3}}{\frac{2}{5}}$

5.  $\left(1\frac{1}{4}\right)\left(2\frac{6}{15}\right)$

---

6.  $\frac{2}{5} + \frac{7}{20}$

7.  $6\frac{2}{5} + (-3\frac{1}{2})$

8.  $\left(-\frac{1}{3}\right) \times \left(-\frac{3}{4}\right)$

---

## Lesson 2 –Homework

---

### Word Problems:

1) Joanne has  $13\frac{1}{2}$  yards of material to make costumes. Each complete costume requires  $1\frac{1}{2}$  yards for the top and  $\frac{3}{4}$  yard for the bottom. How many complete costumes can she make?

---

2) On the first day the Apple iPhone 5 was released, the local store had 200 in stock. By 8:00 pm, the store had sold  $\frac{3}{5}$  of their stock.

[a] How many iPhones were left in the store's stock?

[b] If each iPhone sold for \$500, how much money did the Apple store make in iPhone sales?

---

3) On Saturday, you hiked  $4\frac{3}{5}$  miles. On Sunday, you hiked  $3\frac{1}{2}$  miles. How far did you hike during the weekend?

---

4) The gas tank in your family's car was  $\frac{7}{8}$  full when you left your house. When you arrived at your destination, the tank was  $\frac{1}{4}$  full. What fraction of a tank of gas did you use during the trip?

---

5) Dennis rowed  $\frac{2}{3}$  mile. Maggie rowed  $\frac{8}{10}$  mile. Who rowed further? How much further?

---

Solve each of the following questions and be sure to show all work.

6) The length of a kangaroo's leap can be up to  $6\frac{1}{2}$  times its height. If a kangaroo is  $7\frac{1}{2}$  feet tall, how far can it jump?

---

7) Susan threw the javelin  $76\frac{2}{3}$  meters for her first throw and  $72\frac{3}{4}$  meters for her second throw. How much longer was her first throw than her second throw?

---

8) Mrs. Kurka's family went for a trip. To make the journey interesting, they traveled first  $53\frac{1}{4}$  miles by car and the remaining  $10\frac{2}{3}$  miles by horse. What was the total distance of the trip?

---

9)  $\frac{4}{7}$  of birthday cake was eaten on your birthday. The next day your dad ate half of what was left. You get to finish the cake. How much was left?

---

10) The recipe for mint chocolate chip ice cream requires 2.25 cups of cream for 5 people. You need ice cream for 8 people. How much cream will you need?

---

11) The grocery store parking lot will hold 1000 vehicles.  $\frac{2}{5}$  of the parking spaces are for cars. When you went to buy groceries there were 200 cars and some trucks in the parking lot. The parking lot was  $\frac{3}{4}$  full. How many trucks were in it?

**Lesson 3**  
**Fractions and Decimals-Compare and Order**

**Aim: I can compare and order fractions and decimals.**

**Warm Up:**

1. Give four examples of integers: \_\_\_\_\_
2. Give four examples of whole numbers: \_\_\_\_\_
3. Give four examples of counting (natural) numbers: \_\_\_\_\_
4. Give four examples of integers that are *not* whole numbers: \_\_\_\_\_
5. Give four examples of rational numbers: \_\_\_\_\_
6. Give four examples of irrational numbers: \_\_\_\_\_

Types of Fractions	Types of Decimals
Proper Fractions	Terminating Decimals
Improper Fractions	Non-Terminating/ Non Repeating Decimals
Mixed Numbers	Repeating Decimals

### Fractions to Remember:

$$\frac{1}{4} = .25$$

$$\frac{2}{4} = .5$$

$$\frac{3}{4} = .75$$

$$\frac{1}{5} = .2$$

$$\frac{2}{5} = .4$$

$$\frac{3}{5} = .6$$

$$\frac{4}{5} = .8$$

$$\frac{1}{3} = .\bar{3}$$

$$\frac{2}{3} = .\bar{6}$$

$$\frac{1}{8} = .125$$

$$\frac{3}{8} = .375$$

$$\frac{5}{8} = .625$$

$$\frac{7}{8} = .875$$

$$\frac{1}{9} = .\bar{1}$$

$$\frac{2}{9} = .\bar{2}$$

$$\frac{4}{9} = .\bar{4}$$

$$\frac{5}{9} = .\bar{5}$$

$$\frac{7}{9} = .\bar{7}$$

$$\frac{8}{9} = .\bar{8}$$

$$\frac{1}{10} = .1$$

$$\frac{3}{10} = .3$$

$$\frac{7}{10} = .7$$

$$\frac{9}{10} = .9$$

### Converting Fractions to Decimals:

Divide the denominator into the numerator:

Examples:

$$\frac{1}{4}$$

$$3\frac{2}{5}$$

### Converting Decimals to Fractions:

1. Determine what place the decimal goes to (tenth, hundredth, thousandth, etc.)
2. Write the number in the numerator of a fraction with the place in the denominator
3. Simplify if possible

Examples:

$$0.37$$

$$0.6$$

### Examples:

Convert each fraction or mixed number to a decimal (round to the nearest hundredth if necessary):

1.  $\frac{1}{9}$

2.  $\frac{7}{8}$

3.  $2\frac{4}{9}$

Convert each decimal to a fraction or mixed number:

4. 0.5

5. 0.91

6. 0.15

7. 3.05



## Comparing Fractions and Decimals

### Method 1

1. Convert all numbers to decimals (all to the same place)
2. Compare or Order

ex:  $\frac{3}{10}$  ,  $\frac{1}{4}$  ,  $\frac{3}{8}$  , 0.5 , 0.7

### Method 2

1. Convert all numbers to fractions with a common denominator
2. Compare or Order

ex:  $\frac{3}{10}$  ,  $\frac{1}{4}$  ,  $\frac{3}{8}$  , 0.5 , 0.7

### Compare:

8.  $0.6 \bigcirc 0.525$

9.  $\frac{3}{4} \bigcirc \frac{3}{8}$

10.  $0.8 \bigcirc \frac{17}{20}$

11.  $3\frac{5}{8} \bigcirc 3.625$

### Order the given set of numbers from least to greatest:

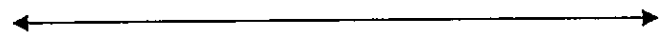
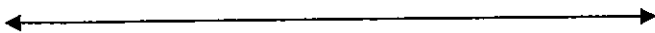
12.  $\frac{7}{10}$  ,  $\frac{3}{4}$  ,  $-\frac{3}{8}$  , 0.25 , 0.9

13.  $\frac{5}{8}$  ,  $-\frac{3}{4}$  ,  $1\frac{3}{8}$  , 1.25 , -1.1

### Plot the given set of numbers on the number line:

14.  $\frac{7}{10}$  ,  $\frac{3}{4}$  ,  $-\frac{3}{8}$  , 0.25 , 0.9

15.  $2\frac{5}{8}$  ,  $-\frac{1}{4}$  ,  $-1\frac{1}{4}$  , 0.25 , -1.75



**Try These: Convert Each Fraction to a Decimal:**

---

1.  $\frac{3}{5}$

2.  $3\frac{1}{8}$

3.  $\frac{7}{5}$

---

4.  $5\frac{9}{25}$

5.  $\frac{17}{20}$

6.  $\frac{53}{50}$

---

**Convert each decimal to a fraction or mixed number:**

7. 0.23

8. 0.251

9. 0.625

---

10.  $0.\bar{2}$

11. 0.36

12. 17.375

---

13. The Yankees won 97 out of 162 games in the 2011 regular season.

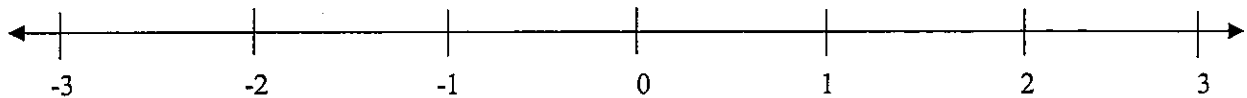
[a] Express this as a fraction

[b] Convert the fraction to a decimal (round to the nearest hundredth)

---

14. Place the following numbers on the number line:

-2.5 , 0.5 , -1.5 , 0.75 , 2.25



**Compare:**

15.  $-0.25$  ○  $-0.2$

16.  $-\frac{4}{5}$  ○  $-\frac{7}{9}$

17.  $0.5$  ○  $\frac{11}{20}$

18.  $4\frac{7}{8}$  ○  $3.9$

---

**Order the given set of numbers from least to greatest:**

19.  $\frac{1}{3}$  ,  $\frac{5}{2}$  ,  $-\frac{7}{3}$  ,  $0.\bar{6}$  , 0.6

20.  $\frac{3}{5}$  ,  $-\frac{1}{4}$  ,  $-\frac{3}{4}$  ,  $\sqrt{4}$  ,  $\pi$

---

**Plot the given set of numbers on the number line:**

21.  $\frac{2}{9}$  ,  $\frac{3}{2}$  ,  $-\frac{1}{3}$  ,  $0.\bar{3}$  , 0.3

22.  $\frac{6}{5}$  ,  $\frac{4}{5}$  ,  $2\frac{1}{4}$  ,  $\sqrt{9}$  ,  $\pi$



---

**Classwork:**

**Convert each Fraction/Decimal to a Decimal/Fraction:**

1.  $\frac{5}{11}$

2.  $2\frac{3}{7}$

3.  $\frac{4}{7}$

---

4. 0.25

5. 0.7

---

6. A batting average is calculated by dividing the total number of hits by the number of at bats. Alex had 9 hits in 25 at bats in 8 games. Over the course of the same 8 games, Derek averaged two hits per game and five at bats per game.

[a] How many hits did Derek have in the 8 game span? [b] Which player had more at bats in this span?

[c] Which player had a higher batting average?

---

**Compare:**

7.  $-0.75$   $\bigcirc$   $-0.7$

8.  $-\frac{3}{5}$   $\bigcirc$   $-0.\bar{6}$

9.  $0.6$   $\bigcirc$   $\frac{7}{11}$

10.  $5\frac{7}{8}$   $\bigcirc$  5.9

## Lesson 8 – Homework

Convert each fraction or mixed number to a decimal (round to the nearest hundredth if necessary):

1.  $\frac{2}{9}$

2.  $\frac{5}{8}$

3.  $\frac{2}{5}$

4.  $4\frac{8}{9}$

5.  $2\frac{7}{8}$

6.  $\frac{19}{5}$

7.  $\frac{2}{11}$

8.  $1\frac{1}{7}$

9.  $\frac{9}{8}$

Convert each decimal to a fraction or mixed number:

10. 0.75

11. 0.9

12. 0.125

13. 0.234

14. 0.2

15. 0.875

16.  $0.\bar{4}$

17. 3.9

18. 0.45

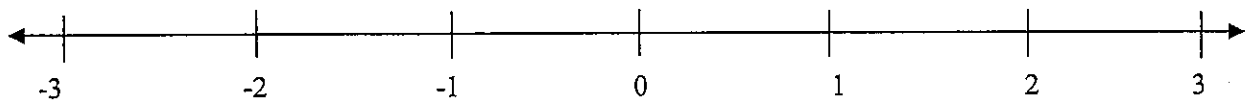
19. The Mets won 77 out of 162 games in the 2011 regular season.

a) Express this as a fraction

b) Convert the fraction to a decimal (round to the nearest hundredth)

20. PLACE THE FOLLOWING NUMBERS ON THE NUMBER LINE:

$$-\frac{2}{5}, \quad 2\frac{1}{2}, \quad -1\frac{1}{2}, \quad \frac{3}{4}, \quad \frac{5}{2}$$



25. The area of a square is 196 square units.

a) What is the length of each side?

b) What is the perimeter?

26. The area of a square is 81 square units.

a) What is the length of each side?

b) What is the perimeter?

27. Is  $\frac{7}{11}$  a rational number or an irrational number? Explain.

---

---

---

**Compare:**

31.  $0.7 \bigcirc 0.60$

32.  $\frac{3}{20} \bigcirc \frac{7}{40}$

33.  $0.4 \bigcirc \frac{9}{20}$

34.  $3\frac{1}{4} \bigcirc 3.3$

35.  $-0.5 \bigcirc -0.7$

36.  $-\frac{4}{9} \bigcirc -\frac{5}{9}$

37.  $0.7 \bigcirc \frac{15}{20}$

38.  $6\frac{1}{8} \bigcirc 6.12$

39.  $0.\overline{4} \bigcirc 0.4$

40.  $-\frac{3}{12} \bigcirc -\frac{1}{4}$

41.  $-0.75 \bigcirc -0.7$

42.  $-4\frac{1}{9} \bigcirc -4.5$

**Order the given set of numbers from least to greatest:**

43.  $\frac{7}{9}$  ,  $\frac{3}{4}$  ,  $-\frac{1}{8}$  ,  $-0.5$  ,  $0.1$

44.  $\frac{7}{8}$  ,  $-\frac{5}{4}$  ,  $5\frac{3}{8}$  ,  $\sqrt{225}$  ,  $-11$

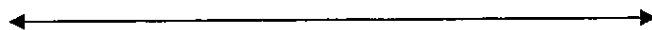
45.  $\frac{2}{5}$ ,  $\frac{4}{5}$ ,  $-\frac{2}{5}$ ,  $\sqrt{26}$ ,  $\sqrt{25}$

46.  $\frac{7}{5}$ ,  $1\frac{1}{5}$ ,  $-\frac{5}{6}$ ,  $-\sqrt{4}$ ,  $2\pi$

**Plot the given set of numbers on the number line:**

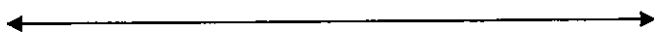
47.  $1\frac{3}{10}$ ,  $\frac{1}{4}$ ,  $-\frac{1}{2}$ , 2.25, 1.9

48.  $2\frac{4}{5}$ ,  $-\frac{3}{4}$ ,  $1\frac{1}{4}$ , -2,  $\sqrt{4}$



49. 1,  $\sqrt{15}$ ,  $\sqrt{9}$ ,  $\pi$ ,  $-\sqrt{1}$

50. -2,  $\sqrt{9}$ , 1, 0,  $\sqrt{2}$



51. Suppose you buy a 1.25-pound package of ham at \$5.20 per pound.

[a] What fraction of a pound did you buy?

[b] How much money did you spend?

52. Complete the chart by putting a check in the correct column:

	-3	$\frac{1}{5}$	$\sqrt{50}$	0.7238...	$0.\bar{5}$	$7\pi$	0	1	$\sqrt{196}$
Counting									
Whole									
Integer									
Rational									

**EXTRA REVIEW RATIONAL NUMBER APPLICATION (DECIMALS)**

---

**USE A CALCULATOR TO SOLVE EACH OF THE FOLLOWING, SHOW ALL WORK:**

1. JOHN GOES TO A GAS STATION THAT SELLS GAS FOR \$4.04/GALLON TO FILL UP HIS CAR. HIS CAR'S GAS TANK HAS A CAPACITY OF 14.78 GALLONS. JOHN'S TANK, HOWEVER, IS NOT EMPTY; THE CAR STILL HAS 1.39 GALLONS OF GAS IN IT. IF JOHN INTENDS TO FILL HIS CAR UP TO CAPACITY, HOW MUCH MONEY WILL HE SPEND?

- 
2. PATHMARK HAS A SALE ON ORANGES: 5 FOR \$4.79. STOP AND SHOP CHARGES \$0.96 PER ORANGE. IF KELLY WANTS TO BUY 10 ORANGES, WHICH STORE SHOULD SHE GO TO? HOW MUCH WOULD SHE SAVE?

- 
3. A RARE TRUFFLE ONCE SOLD FOR \$13.20 FOR A 0.44 LB CAN.
- HOW MANY CANS WOULD YOU NEED TO BUY IF YOU WANTED AT LEAST 10 LBS?
  
  
  
  
  
  
  
  
  
  
  - WHAT WOULD IT COST TO PURCHASE THIS AMOUNT OF CANS?

- 
4. ON VACATION, YOU WISH TO SEND 28 POSTCARDS TO FAMILY MEMBERS BACK HOME. EACH POSTCARD COSTS \$1.49, WHILE STAMPS COST \$3.43 FOR A PACK OF SEVEN. HOW MUCH WILL IT COST IN TOTAL TO SEND THESE 28 POSTCARDS?

- 
5. PAUL STOPS BY THE MARKET TO BUY HIS LUNCH. THE MARKET IS SELLING BANANAS FOR \$0.22 EACH, AND SANDWICHES FOR \$3.95. HOW MUCH DOES PAUL SPEND IF HE PURCHASES ONE SANDWICH AND THREE BANANAS?

6. A GROUP OF FOUR FRIENDS ARE PLANNING TO TAKE A TRIP FROM NEW YORK TO NASHVILLE, TENNESSEE. THEY ARE LOOKING INTO THE PRICE OF DRIVING AS OPPOSED TO FLYING.
- A. THE DISTANCE OF THE TRIP IS 939.8 MILES. THE AVERAGE PRICE OF GAS IN THE UNITED STATES IS \$3.72. THE CAR THE GROUP PLANS TO TAKE GETS 24.3 MILES PER GALLON. HOW MUCH WILL IT COST THE GROUP TO DRIVE? (ROUND TRIP)
- B. THE COST PER TICKET FOR A ROUND TRIP FLIGHT FROM JFK TO NASHVILLE IS \$268.29. HOW MUCH WOULD IT COST THE GROUP TO FLY?
- C. WHICH OPTION IS CHEAPER? BY HOW MUCH?

7. AJ IS THE OWNER OF A SPORTS STORE. HE IS LOOKING INTO STOCKING HIS STORE WITH A NEW BRAND OF BASEBALL BATS. THERE ARE THREE DIFFERENT COMPANIES THAT SELL THIS PARTICULAR BAT. EACH COMPANY IS RUNNING A DIFFERENT SALE ON THESE BATS, ALL LISTED BELOW.

**JOHN'S BASEBALL SUPPLY**

BUY 3 BATS AT THE LIST PRICE OF \$89.79 AND GET A FOURTH BAT FREE!

**BASEBALL PLUS**

PRICE PER BAT: \$71.95  
 \*\*IF YOU PURCHASE MORE THAN 150 BATS, RECEIVE 10% OFF THE ENTIRE ORDER!

**SPORT SUPPLIERS**

PRICE PER BAT: \$77.75  
 \*\*IF YOU PURCHASE MORE THAN 200 BATS, RECEIVE \$3000 OFF THE ENTIRE ORDER!

- A. IN THE BEGINNING OF JANUARY, AJ WANTS TO STOCK HIS STORE WITH 100 BATS. WHICH COMPANY WOULD BE THE CHEAPEST?
- B. AS BASEBALL SEASON APPROACHES, AJ WANTS TO INCREASE HIS STOCK OF BATS TO 300. IF HE HAD SOLD A TOTAL OF 28 BATS SINCE JANUARY, WHICH COMPANY WOULD BE BEST FOR HIS NEXT PURCHASE?
- C. AJ SELLS OUT OF BATS IN EARLY APRIL. HE WANTS TO RESTOCK, BUT IS ADVISED TO LOOK INTO PURCHASING FOR A FULL YEAR. HE ESTIMATES THAT HE WILL SELL 2500 BATS PER YEAR. IF HE WANTS TO PURCHASE 2500 BATS TO STOCK HIS WAREHOUSE, WHICH COMPANY IS BEST?
- D. WHILE LOOKING INTO MAKING THIS PURCHASE, AJ RECEIVES A SPECIAL OFFER FROM SPORTS SUPPLIERS. THEY TELL AJ THAT THEY WILL REDUCE THE PRICE PER BAT BY \$10 IF AJ AGREES TO MAKE ALL FUTURE PURCHASES THROUGH THEM. IS THIS DEAL CHEAPER THAN THE OTHER TWO COMPANIES IF AJ STILL INTENDS TO PURCHASE 2500 BATS?



Name: \_\_\_\_\_

**Fractions to Remember:**

$$\frac{1}{4} = .25 \quad \frac{1}{2} = .5 \quad \frac{3}{4} = .75$$

$$\frac{1}{5} = .2 \quad \frac{2}{5} = .4 \quad \frac{3}{5} = .6 \quad \frac{4}{5} = .8$$

$$\frac{1}{3} = .\bar{3} \quad \frac{2}{3} = .\bar{6}$$

$$\frac{1}{8} = .125 \quad \frac{3}{8} = .375 \quad \frac{5}{8} = .625 \quad \frac{7}{8} = .875$$

$\frac{1}{9} = .\bar{1}$	$\frac{2}{9} = .\bar{2}$	$\frac{4}{9} = .\bar{4}$	$\frac{5}{9} = .\bar{5}$	$\frac{7}{9} = .\bar{7}$	$\frac{8}{9} = .\bar{8}$
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

$\frac{1}{10} = .1$	$\frac{2}{10} = .2$	$\frac{3}{10} = .3$	$\frac{4}{10} = .4$	$\frac{5}{10} = .5$	$\frac{6}{10} = .6$	$\frac{7}{10} = .7$	$\frac{8}{10} = .8$	$\frac{9}{10} = .9$	$\frac{10}{10} = 1$
---------------------	---------------------	---------------------	---------------------	---------------------	---------------------	---------------------	---------------------	---------------------	---------------------

Name: \_\_\_\_\_

Period: \_\_\_\_\_

**7R Unit 2 Review Sheet**

---

**Round the following decimals to the**

- a) nearest tenth:
- b) nearest hundredth:
- c) nearest whole number:

1) 18.1286

2) 2.4234

3) 3.2978

---

**Write each fraction or mixed number as a decimal.**

4)  $\frac{2}{3}$

5)  $\frac{1}{2}$

6)  $2\frac{4}{5}$

---

**Write each decimal as a fraction.**

7) .6

8) .45

9) 4.3

---

**Replace  $\bigcirc$  with  $<$ ,  $>$ , or  $=$ .**

10)  $\frac{4}{5} \bigcirc \frac{5}{6}$

11)  $.35 \bigcirc \frac{1}{3}$

12)  $5.1 \bigcirc 5\frac{1}{5}$

---

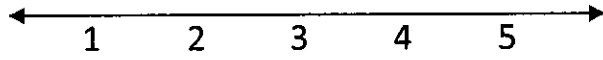
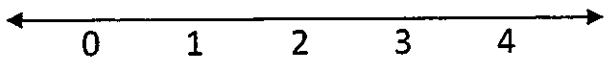
**Order the set of rational numbers from least to greatest. Graph on the number line.**

13)  $\left\{ \frac{1}{5}, 3.8, 2\frac{2}{3}, 0.75 \right\}$

14)  $\left\{ \frac{6}{3}, 1.5, 2\frac{1}{3}, 4\frac{3}{8} \right\}$

Graph on the number line.

Graph on the number line.



Convert the following into a mixed number or an improper fraction:

15)  $2\frac{1}{3}$

16)  $\frac{16}{5}$

17)  $6\frac{5}{6}$

---

Find the sum or difference:

18)  $4.1 + 2.9$

19)  $-12.8 + 3$

20)  $12.362 - (-3.41)$

---

Find the product:

21)  $(4.3)(1.45)$

22)  $(6.3)(-7.4)$

23)  $(-13.1)(-2.6)$

---

Find the quotient:

24)  $15.8 \div 2$

25)  $\frac{-22}{0.4}$

26)  $\frac{12.15}{2.7}$

---

Find each sum or difference:

27)  $\frac{1}{4} + \frac{3}{6}$

28)  $\frac{7}{12} - \frac{1}{3}$

29)  $\frac{3}{5} - \frac{1}{3}$

---

30)  $3\frac{3}{10} - (-1\frac{3}{5})$

31)  $4 - 2\frac{3}{10}$

32)  $-3\frac{1}{2} + -4\frac{1}{3}$

Find each product or quotient:

33)  $\frac{5}{8} \cdot \frac{2}{5}$

34)  $\frac{3}{8} \div \frac{2}{3}$

35)  $\frac{\frac{1}{4} \cdot \frac{2}{3}}{\frac{1}{4} \cdot \frac{2}{3}}$

36)  $3\frac{5}{6} \cdot 2\frac{1}{4}$

37)  $3\frac{3}{5} \div 1\frac{1}{5}$

38)  $\frac{6}{3\frac{1}{2}}$

**Word Problems:**

39) What is  $\frac{3}{4}$  of 24?

40) Monica had 18 cookies. If Monica ate  $\frac{1}{6}$  of the cookies after dinner, how many cookies were left?

41) Joe made two types of desserts. He used  $\frac{2}{3}$  cups of sugar for one recipe and  $\frac{1}{4}$  cups of sugar for the other recipe. How much sugar did he use in all?

42) Six cases of paper cost \$43.50. How much does one case cost?

**Unit 2 Vocabulary:**

Sum: \_\_\_\_\_

Difference: \_\_\_\_\_

Product: \_\_\_\_\_

Quotient: \_\_\_\_\_

Numerator: \_\_\_\_\_

Denominator: \_\_\_\_\_

Reciprocal: \_\_\_\_\_

Improper Fraction: \_\_\_\_\_

Mixed Number: \_\_\_\_\_

Simplify: \_\_\_\_\_

Convert: \_\_\_\_\_

LCD: \_\_\_\_\_

Complex Fraction: \_\_\_\_\_

# Unit 3

## Expressions

	<b>Date</b>	<b>Lesson</b>	
		1	Classifying Polynomials & Combining Like Terms
		2	Combining Like Terms with Negatives
		3	The Distributive Property
		4	Distribute and Combine Like Terms
		5	Greatest Common Factors (GCF)
		6	Factoring
			<b>Quiz</b>
		7	Adding and Subtracting Expressions
		8	Translating Expressions
			Review
			Test

Lesson 1

Classifying Polynomials & Combining like Terms

**AIM: I can identify and combine like terms and classify polynomials.**

Warm Up:

Important Vocabulary:

Variable: \_\_\_\_\_

Coefficient: \_\_\_\_\_

Constant: \_\_\_\_\_

Ex:  $3x + 5$

Variable: \_\_\_\_\_

Coefficient: \_\_\_\_\_

Constant: \_\_\_\_\_

Term: \_\_\_\_\_

Polynomial: \_\_\_\_\_

Monomial: \_\_\_\_\_

Ex 1: \_\_\_\_\_

Ex 2: \_\_\_\_\_

Ex 3: \_\_\_\_\_

Binomial: \_\_\_\_\_

Ex 1: \_\_\_\_\_

Ex 2: \_\_\_\_\_

Ex 3: \_\_\_\_\_

**Trinomial:** \_\_\_\_\_

Ex 1: \_\_\_\_\_

Ex 2: \_\_\_\_\_

Ex 3: \_\_\_\_\_

**Like Terms:** \_\_\_\_\_

Ex 1: \_\_\_\_\_

Ex 2: \_\_\_\_\_

Ex 3: \_\_\_\_\_

**Perimeter:** \_\_\_\_\_

**Examples:**

**Identify the Variable, Coefficient and Constant in Each of the Following:**

1.  $4y + 7$       Variable: \_\_\_\_\_      Coefficient: \_\_\_\_\_      Constant: \_\_\_\_\_

2.  $3x + 12$       Variable: \_\_\_\_\_      Coefficient: \_\_\_\_\_      Constant: \_\_\_\_\_

3.  $-2z + 17$       Variable: \_\_\_\_\_      Coefficient: \_\_\_\_\_      Constant: \_\_\_\_\_

4.  $x - 3$       Variable: \_\_\_\_\_      Coefficient: \_\_\_\_\_      Constant: \_\_\_\_\_

5.  $19x$       Variable: \_\_\_\_\_      Coefficient: \_\_\_\_\_      Constant: \_\_\_\_\_

---

**Classify Each of the Following as Monomials, Binomials, or Trinomials:**

6.  $14x - 2$

7.  $3x + 4y$

8.  $5x$

9.  $3x + 2y - 2z$

10.  $3xyz$

---

11.  $x + y + z$

12.  $2x - y$

13.  $14x$

14.  $5x + y - z$

15.  $2x$

---

**State whether the given terms are like terms or not like terms:**

16.  $3x$  &  $4$

17.  $5x$  &  $8x$

18.  $4ab$  &  $2ac$

19.  $12$  &  $3$

20.  $8a$  &  $-4a$

21.  $x$  &  $4x$

22.  $xy$  &  $x$

23.  $x^2$  &  $x$

24.  $10z$  &  $2z$

25.  $2x$  &  $-4$

**Combining Like Terms:**

Step 1 – Identify like terms

Step 2 – Perform appropriate operation to combine like terms

Simplify Each Expression:

1)  $3x + 6x$

2)  $2x + 2 + 1$

3)  $8y + 7y$

4)  $8x + 2x + 5$

5)  $5x + x$

6)  $3x + 2 + y$

7)  $9x + 4y + 2x + 3y$

8)  $7x + 8 + x + 3$

9)  $8x + 4x$

10)  $4x + 7y + 4 + 5x + y$

11)  $8x + 10.2 + 4x + 2.9$

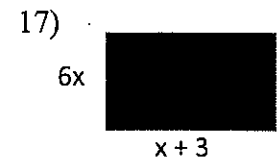
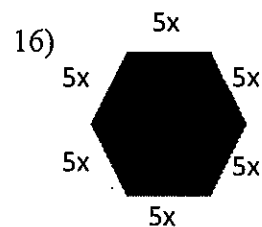
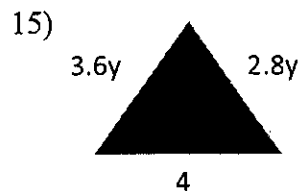
12)  $8y + 4 + 7$

13)  $9.2x + 4.3y + x$

14)  $9y + 2y$

15)  $3x + 5y + 6$

Write an expression in simplest form for the perimeter of each figure:





## Lesson 1 – Classwork/Homework

---

Circle "like" or "not like" for the following terms:

1)  $x$     $2x$                       2)  $6a$     $4$                       3)  $2x^2$     $x$                       4)  $z$     $3z$                       5)  $\frac{1}{2}x$     $.4y$

like   not like

like   not like

like   not like

like   not like

like   not like

---

a) Determine what the *coefficient* is, b) Determine what the *variable* is, and c) Determine what the *constant* is:

6)  $3x + 5$                       7)  $2y + 9$                       8)  $-9a + 10$                       9)  $7z + 18$                       10)  $12z - 10$

a) \_\_\_\_\_                      a) \_\_\_\_\_                      a) \_\_\_\_\_                      a) \_\_\_\_\_                      a) \_\_\_\_\_

b) \_\_\_\_\_                      b) \_\_\_\_\_                      b) \_\_\_\_\_                      b) \_\_\_\_\_                      b) \_\_\_\_\_

c) \_\_\_\_\_                      c) \_\_\_\_\_                      c) \_\_\_\_\_                      c) \_\_\_\_\_                      c) \_\_\_\_\_

---

Simplify the following expressions:

11)  $5x + 3x$

12)  $8x + 4x$

13)  $6x + 4x + x$

14)  $2x + x + 8$

15)  $3x + 5 + x$

16)  $3x + 2x + y + 3y$

17)  $7 + 6x + 2 + 3x$

18)  $x + 2x + 2y + 3y$

19)  $x + x + y + y$

20)  $7x + 3 + 4x + 5y + 10$

21)  $9x + 6y + 4 + 2x + y + 2$

22)  $x + 5 + 6x$

23)  $3.2x + 5 + 6.8x$

24)  $4x + 4.2 + 5x + 2.6$

25)  $\frac{2}{5}x + 7y + \frac{3}{10}x + 10y$

**Lesson 2**  
**Combining Like Terms with Negatives**

---

**AIM: I can identify and combine like terms with negatives.**

---

**Warm Up:**

---

Simplify the following expression:  $3x + 5y - 2x - 8y$

**Step 1:** Draw a shape around like terms  $\boxed{3x} + \textcircled{5y} - \boxed{2x} - \textcircled{8y}$

**Be sure to take the sign in front of the coefficient!!!**

**Step 2:** Use your integer rules to combine (add) the like terms.

Same signs add and keep,  
Different signs subtract.  
Keep the sign of the higher number,  
Than you'll be exact!! ☺

X's	Y's
3x	5y
+ -2x	+ -8y
1x	-3y

$$= 1x - 3y$$

**Step 3:** Use the sign in your second term as your plus or minus sign.

---

**Examples:** Simplify Each Expression

1)  $7x - 2x$

2)  $-3y - 4y$

3)  $6x + 3 - 4x + 5$

---

4)  $10s + 4t - 5s - 2t$

5)  $4y - 3 + 2y - 2$

6)  $7x - 9 + 3x$

---

**Try These:** Simplify Each Expression

7)  $7x + 5 - 7x - 9$

8)  $6x + 8y - 9x - 2y$

9)  $5x + 7y - 5y - 5x$

---

10)  $8x + 9y - 4 + x - 6y - 3$

11)  $4x + 9y - 5y + 3x$

12)  $6.2y - 5.6x + y$

---

**Lesson 2 – Classwork/Homework**

Simplify each expression:

1)  $5x - 2x$

2)  $-4y - 6y$

3)  $7x + 4y + x - 8y$

4)  $6x + 8 - 2x + 5$

---

5)  $9y - 7 + 2y - 2$

6)  $5x - 9 + 2x + 9$

7)  $-9x + 5 - 7x - 7$

8)  $6x + 5y - 6x - 2y$

---

9)  $-10s + 4t - s - 9t$

10)  $-4x + 4x$

11)  $8y - 4 - 7$

12)  $-x - 5 + 6x$

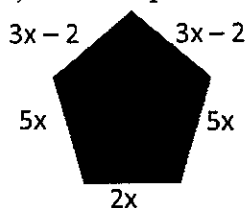
---

13)  $7.2x - 5 + 3.6x + 6$

14) Write an expression with a sum of  $-5x + 4$ .

---

15) Find the perimeter:



**Lesson 3**  
**Distributive Property**

---

**AIM: I can simplify expressions using the distributive property.**

---

**Warm Up:**

---

**The Distributive Property** is one of the basic properties of the real number system.


To **distribute** something means to hand it out. If you distribute a test paper to your class, you give a test to each person in the class.

The Distributive Property says that if  $a$ ,  $b$ , and  $c$  are real numbers, then:

$$\begin{aligned} a(b + c) &= (a \cdot b) + (a \cdot c) \\ &= ab + ac \end{aligned}$$

To "simplify" this, we have to remove the parentheses. The Distributive Property says to **multiply** the outside number to **everything** inside the parentheses. Draw arrows as a reminder.


**Example 1:** Simplify  $3(x + 4)$


$$3(x + 4)$$

$$3(x) + 3(4)$$

$$3x + 12$$

**Example 2:** Simplify  $-3(x + 4)$


$$-3(x + 4)$$

$$-3(x) + -3(4)$$

$$-3x + -12 \text{ or } -3x - 12$$

---

**Examples:** Distribute

1)  $2(x + 6)$

2)  $3(2x - 4)$

3)  $4(-3x + 5)$

4)  $2(5x - 7)$

---

Distributing by a negative 1 is the same as taking the \_\_\_\_\_.

$-1(200) = \underline{\hspace{2cm}}$        $-1(-200) = \underline{\hspace{2cm}}$        $-1(5) = \underline{\hspace{2cm}}$        $-1(-5) = \underline{\hspace{2cm}}$        $-1(-300000) = \underline{\hspace{2cm}}$

---

5)  $-(-3x + 4)$       6)  $-(3x - 4)$       7)  $-(-2x + 6)$       8)  $-(7x - 8)$

---

9)  $-3(-2x + 5)$       10)  $-4(5x - 3)$       11)  $-2(6x - 9)$       12)  $-5(8x - 9)$

---

13)  $\frac{1}{2}(6x - 8)$       14)  $\frac{1}{3}(9x - 6)$       15)  $-\frac{1}{2}(-10x + 14)$       16)  $\frac{1}{5}(15x - 10)$

---

**Try These:**

1)  $4(2x - 1)$

2)  $6(x + 3)$

3)  $5(3x - 4)$

4)  $3(8x + 2)$

---

5)  $2(-4x - 3)$

6)  $-5(6x + 3)$

7)  $-(2x - 5)$

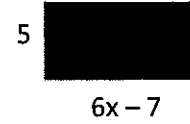
8)  $(4x + 1)3$

---

9)  $\frac{1}{2}(4x + 6)$

10)  $\frac{1}{5}(10x - 15)$

10) Find the area of the following:



---

11)  $2(3x + 2)$

12)  $4(5x - 4)$

13)  $3(6x + 7)$

14)  $-4(x - 4)$

15)  $5(-6x + 2)$

---

16)  $-3(x - 5)$

17)  $5(-2x - 6)$

18)  $-(5x + 4)$

19)  $-2(4x - 3)$

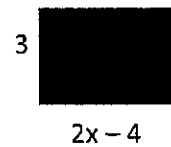
20)  $-6(2x - 3)$

---

21)  $\frac{1}{3}(9x + 12)$

22)  $\frac{1}{4}(16x - 4)$

23) Find the area of the following:



**Classwork:**

1)  $3(4 + 3y)$

2)  $-2(6x - 8)$

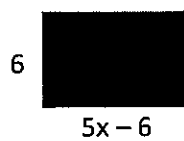
3)  $4(x + 5)$

4)  $-(-2 - 5n)$

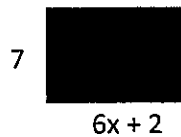
5)  $\frac{1}{2}(8n + 2)$

6)  $-2(3x + 1)$

7) Find the area of the following:



8) Find the area of the following:



### Lesson 3 - Homework

---

1)  $-4(x + 3)$

2)  $2(x - 5)$

3)  $-3(x + 6)$

4)  $-(-x + 7)$ 

---

5)  $9(-x - 2)$

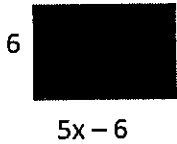
6)  $5(3x - 4)$

7)  $\frac{1}{3}(6x + 15)$

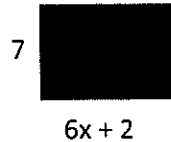
8)  $-10(a - 5)$ 

---

9) Find the area of the following:



10) Find the area of the following:



#### Review:

Identify the Variable, Coefficient and Constant in Each of the Following:

11)  $2a + 6$       Variable: \_\_\_\_\_      Coefficient: \_\_\_\_\_      Constant: \_\_\_\_\_

12)  $x + 12$       Variable: \_\_\_\_\_      Coefficient: \_\_\_\_\_      Constant: \_\_\_\_\_

13)  $-z + 1$       Variable: \_\_\_\_\_      Coefficient: \_\_\_\_\_      Constant: \_\_\_\_\_

Classify Each of the Following as Monomials, Binomials, or Trinomials:

14)  $14x - 2x$       15)  $3x + 4y$       16)  $5x$       17)  $3x + 2y - 2z$       18)  $3xyz$

Simplify the following expression

19)  $6x + 4y + 7x + y$

20)  $9x - 7y - 2x + 9y$

21)  $7x + 5y - 7x - 8y$



Lesson 4  
Distribute and Combine Like Terms

---

**AIM: I can simplify expressions by distributing and combining like terms.**

---

**Warm Up:**

**Example:**

$$2(3x + 5) + 4$$

**Step 1:** Box out the distributive property  
(Be sure to take the sign in front)

**Step 2:** Bring down everything outside the box

**Step 3:** Distribute

**Step 4:** Combine Like Terms

$$\begin{array}{ccc} \boxed{2(3x + 5)} + 4 & & \\ \downarrow \quad \downarrow \quad \downarrow & & \\ 6x & + 10 & + 4 \\ \boxed{6x} & \boxed{+ 10} & \boxed{+ 4} \end{array}$$

Answer:  $6x + 14$

**Remember:** You must distribute first before you combine like terms!

---

**Examples:** Simplify each expression:

1)  $4(2x + 3) + 6x$

2)  $8(x - 5) + 20$

3)  $-(x + 7) + 8x$

4)  $3 + 2(2x + 6) + x$

---

5)  $5x + 3(2x - 6) + 1$

6)  $2(3x - 4) + 4 - 9$

7)  $3(5 + 4x) + 12x$

8)  $9x + 5(-3x - 5)$

---

**Try These:** Simplify Each Expression

1)  $2(3x + 1) + 4x$

2)  $-5(2x + 4) + 10$

3)  $-(x + 4) + 7x$

4)  $7 - 3(x + 9)$

---

5)  $5x + 3(2x - 6) + 1$

6)  $6(3x - 4) - 15x$

7)  $9 + \frac{1}{2}(2x + 4)$

8)  $5x - 3(x - 4) + 6$

## Lesson 4 - Homework

---

Simplify.

1)  $4x + 2(3x + 4)$

2)  $-5(x + 8) - 12$

3)  $-(x + 3) + 5x$

4)  $8 - 9(x + 4)$

---

5)  $8x + 4(2x - 5)$

6)  $\frac{1}{2}(4x - 4) + 4x$

7)  $6(5 - 2x) - 20$

8)  $10x + 4(-3x - 5)$

---

9)  $6x + 3(x - 7)$

10)  $\frac{1}{2}(6x - 4) - 5x$

11)  $-(6 + 2x) - 12$

12)  $7x - (-3x - 5)$

---

13)  $3(3x - 5) + 6x$

14)  $2(4 - 2x) + 4x - 8$

15)  $-2(5 + 2x) + 12x$

16)  $-10x + 4(-8x - 2)$

**Lesson 5:**  
**Greatest Common Factors (GCF)**

**AIM: I can find the greatest common factor.**

**Warm Up:**

Find the prime factors using prime factorization.

1) 30

2) 45

3) 14

4) 49

**Vocabulary:**

Factors - \_\_\_\_\_

Prime - \_\_\_\_\_

Composite - \_\_\_\_\_

Greatest Common Factors (GCF) - \_\_\_\_\_

**Finding the Greatest Common Factor (GCF)**

Method 1 (List the factors)

30 and 45      GCF= \_\_\_\_\_

30

45

Method 2 (Prime Factorization)

30

45

Prime factors of 30 \_\_\_\_\_

Prime factors of 45 \_\_\_\_\_

**Finding GCF using Prime Factorization**

1. List the prime factors of each number.
2. Multiply the factors **both** numbers have in common. If there are no common prime factors, the GCF is 1 (**relatively prime**).

Prime factors of 30 and 45 in common \_\_\_\_\_

**Examples:**

---

**Find the Greatest Common Factors using prime factorization method if necessary.**

- 1) 18 and 24      2) 12 and 8      3) 99 and 18      4)  $\frac{8}{5}$  and  $1\frac{4}{5}$

- 5) 8 and 4      6) 15 and 10      7) 6 and 9      8)  $\frac{1}{2}$  and  $4\frac{1}{4}$

---

**Try These:**

**Find the GCF of the numbers given:**

- 1) 16 and 28      2) 30 and 24      3) 8 and 16      4) 5 and 20

- 
- 5) 24 and 36      6) 12 and 15      7) 30 and 40      8) 35 and 49

- 
- 9) 21 and 7      10) 6 and 12      11)  $\frac{2}{3}$  and  $2\frac{2}{3}$       12)  $\frac{12}{7}$  and  $1\frac{1}{7}$

## Day 5 Classwork/Homework

---

Determine if the following numbers are prime, composite or neither.

1) 33

2) 23

3) 3

4) 7

5) 49

6) 18

7) 1

---

Find the GCF using prime factorization if necessary.

8) 15 and 10

9) 9 and 12

10) 2 and 6

---

11) 30 and 42

12) 36 and 144

13) 8 and 24

---

14)  $\frac{4}{3}$  and  $4\frac{2}{3}$

15)  $1\frac{3}{5}$  and  $\frac{6}{5}$

---

Lesson 6  
Factoring

---

**AIM: I can find the GCF and use that to factor a polynomial.**

---

**Warm Up:** Find GCF of each set of numbers:

1) 10 and 25

2) 10 and 18

3) 24 and 36

4) 20 and 40

5)  $\frac{4}{5}$  and  $\frac{8}{5}$

---

**Vocabulary:**

**Greatest Common Factor (GCF):** \_\_\_\_\_

**Factoring:** \_\_\_\_\_

---

**Factoring Steps:**

1. Find the GCF of all terms
2. Write the GCF outside of the set of parentheses
3. Divide each term by the GCF

**Examples:**

**Factor:**                     $6x + 9$

$5x - 15$

**Factor:**

6)  $10x + 25$

7)  $7x + 14$

8)  $16x - 12$

9)  $30x + 45$

---

10)  $24x - 32$

11)  $10 - 18x$

12)  $15x - 25$

13)  $3x - 3$

14)

$$\frac{2}{5}x + \frac{4}{5}$$

15)

$$\frac{2}{3}x - \frac{4}{3}$$

Find the missing side of the rectangle given the area:

16) Area =  $12x + 9$

3



17) Area =  $18x - 45$

9



Try These:

Factor:

1)  $4x + 6$

2)  $18 - 9x$

3)  $8x - 10$

4)  $15x + 20$

5)  $2x - 5$

6)  $24x - 32$

7)  $12x - 48$

8)  $10x - 10$

9)  $\frac{3}{5}x + \frac{6}{5}$

10)  $\frac{6}{7}x - 1\frac{2}{7}$

11) Area =  $21x + 28$

7





**Lesson 6 – Classwork/Homework**

---

**Factor:**

1)  $8x - 8$

2)  $10 - 6x$

3)  $4x - 16$

---

4)  $9x + 12$

5)  $5x - 10$

6)  $12x + 12$

---

7)  $\frac{5}{6}x - \frac{10}{6}$

8)  $\frac{2}{3}x + 2\frac{2}{3}$

**Find the missing side of the rectangle given the area:**

---

9) Area =  $81x + 18$



$9x + 2$

10) Area =  $25x - 40$



5

---

11) Area =  $24x - 12$



$4x - 2$

12) Area =  $18x + 81$



9

Lesson 7  
Adding and Subtracting Expressions

---

**AIM: I can simplify polynomials by combining like terms.**

---

**Warm Up:**

---

**Example 1:** What is the sum of  $(6x^2 + 5x - 3) + (x^2 - 9)$ ?

Rewrite the expressions clearing the parentheses.  
Then combine like terms.

$$\boxed{6x^2} + \boxed{5x} - \boxed{3} + \boxed{1x^2} - \boxed{9} = 7x^2 + 5x - 12$$

---

**Example 2:** Find the difference of  $(3p - 5) - (p + 4)$ .

We need to distribute the negative (-1) to the second expression to clear the parentheses.  
Then combine like terms.

$$(3p - 5) - (p + 4) = \boxed{3p} - \boxed{5} - \boxed{1p} - \boxed{4} = 2p - 9$$

---

**Examples:**

1)  $(4p + 2) + (p - 9)$

2)  $(2x^2 + 5x + 7) + (3x^2 - 4x - 1)$

$$3) (5p + 4) + (p - 10)$$

$$4) (3x^2 + 2x + 9) + (4x^2 - 5x - 6)$$

---

$$4) (4x^2 + 2x + 4) - (3x^2 - x + 6)$$

5) Subtract  $8x + 10$  from  $14x + 15$ .

---

$$6) (3x^2 - 5x + 2) - (5x^2 - x + 3)$$

7) Subtract  $9x + 12$  from  $10x + 19$ .

---

**Try These:**

$$1) (10x - 4) + (x - 2)$$

$$2) (4x^2 - 6) - (2x^2 + 1)$$

$$3) (4x + 4) + (-5x + 1)$$

---

4)  $(x^2 + 8x - 5) + (3x^2 - 4x - 7)$       5)  $(2x^2 - 4x + 1) - (3x^2 + 8x - 9)$       6) Subtract  $2x + 3$  from  $6x - 1$

---

**Lesson 7 – Classwork/Homework**

---

Simplify the following expressions:

1)  $(5x + 1) + (-2x - 3)$

2)  $(8x - 2) - (-4x + 1)$

3)  $(6x^2 + 2x + 9) + (x^2 - 4x - 12)$

---

4)  $(x^2 - 5x + 13) - (4x^2 - 5x - 7)$

5)  $(7x^2 + x - 4) + (11x^2 - 8x + 5)$

---

6) Subtract  $12x + 5$  from  $10x - 2$ .

7) Subtract  $4x^2 + 9x$  from  $2x^2 + 3x$

---

8) Katy wants to simplify the subtraction expression shown below:

$$(2mn - 5m^2) - (4n^2 + 3mn - m^2)$$

Which of the following expressions is equivalent to this subtraction expression?

- A  $2mn - 5m^2 - 4n^2 + 3mn - m^2$
- B  $2mn - 5m^2 - 4n^2 - 3mn + m^2$
- C  $-2mn + 5m^2 - 4n^2 + 3mn + m^2$
- D  $-2mn + 5m^2 - 4n^2 - 3mn + m^2$

---

9) What is the sum of the expression below?

$$(8p + q + 5) + (p + q - 7)$$

- A  $8p + q + 2$
- B  $8p + q - 2$
- C  $9p + q - 2$
- D  $9p + 2q - 2$

---

10) What is the GCF of  $45x^2 + 18$ ?

- A 6
- B 9
- C 18
- D 45

---

11) Which expression has a GCF of 6?

- A  $6w^2 + 8$
- B  $12w^2 - 3$
- C  $24w^2 + 36$
- D  $30w^2 - 18$

**Lesson 8**  
**Translating Expressions**

**AIM: I can verbal phrases into mathematical expressions.**

Warm Up:

Addition Phrases	Expression	Subtraction Phrases	Expression
*8 <b>more than</b> a number The <b>sum</b> of a number and 8 x <b>plus</b> 8 x <b>increased by</b> 8	$x + 8$	*6 <b>less than</b> a number *6 <b>subtracted from</b> a number r The <b>difference</b> of r and 6 r <b>minus</b> 6 r <b>decreased by</b> 6	$r - 6$
Multiplication Phrases	Expression	Division Phrases	Expression
4 <b>multiplied by</b> n 4 <b>times</b> a number The <b>product</b> of 4 and n	$4n$	A number <b>divided by</b> 3 The <b>quotient</b> of z and 3 The <b>ratio</b> of z and 3	$\frac{z}{3}$

Examples: Write each verbal phrase as an algebraic expression

- 1) The sum of 8 and x                      2) The quotient of g and 15                      3) The product of 5 and b

- 4) p increased by 10                      5) 14 less than f                      6) The difference of 32 and x

- 7) Twice Sue's height                      8) Four times John's score                      9) Eight less than Amy's shoe size

---

10) The taxi fare of \$.50 for each mile

11) 5 more than 3 times a number

---

12) The quotient of 5 and  $x$  decreased by 8

---

13) A cab ride has a flat fee of \$3 plus \$0.50 per mile. Write an expression to represent this situation.

---

**Try These:** Write each verbal phrase as an algebraic expression

---

1) The cost of 7 CDs at \$ $d$  each

2) The height decreased by 2 inches

---

3) A number divided by 5

4) The total of Ben's score and 75

---

5) 2 hours more than the estimated time

6) 14 more than  $s$

---

7) \$500 less than the sticker price

8) 25 times the number of students

---

9) The score increased by 8 points

10) The cost split among 4 people

---

11) 8 less than the product of 10 and  $x$

12) The quotient of  $x$  and 4 plus 12

---

13) A plumber charges a flat rate of \$50 plus \$25 for each additional hour. Write an expression to represent this situation.

---

14) You watch  $x$  minutes of television on Monday, the same amount on Wednesday, and 30 minutes on Friday. Express the situation in simplest form.

---

15) Colleen and her friends paid a total of \$7 for tickets to the school football game. While at the game, they bought 5 hotdogs at  $x$  dollars each, 4 boxes of popcorn at  $y$  dollars each, and 2 pretzels at  $z$  dollars each.

a) Write an expression to show the total cost of admission and the snacks.

b) Hot dogs cost \$4, popcorn cost \$3, and pretzels cost \$2. What was the total cost for admission and snacks?



## Lesson 8 - Homework

---

Write each verbal phrase as an algebraic expression.

1) The number divided by 5

2) The sum of  $x$  and 7

---

3) The product of 10 and  $c$

4) 6 less than  $x$

---

5) Twice  $y$

6) The difference of  $t$  and 1

---

7) 17 more than a number

8) The quotient of  $z$  and 10

---

9) The number of members divided by 5

10) The total of Josh's savings and \$350

---

11) The total area decreased by 75 sq ft

12) The cost of 10 books at  $\$d$  each

---

13) Sue's height plus 2 inches

14) The cost split among 5 friends

---

15) Five increased by a number

16) Triple John's weight

---

17) The quotient of  $x$  and 5

18) Seven less than  $y$

---

19) 10 increased by 2 times a number

20) 8 less than the quotient of  $x$  and 2

---

21) The product of 3 and a number minus 4

22) 6 times the sum of  $x$  and 4

---

23) A carnival has an entrance fee of \$10 plus \$2 for each ride. Write an expression to represent this situation.

Name: \_\_\_\_\_

Lesson 1:

Define the following AND give an example of each:

**Monomial:** \_\_\_\_\_

**Binomial:** \_\_\_\_\_

**Trinomial:** \_\_\_\_\_

**Polynomial:** \_\_\_\_\_

State the operation represented by each:

**Sum:** \_\_\_\_\_

**Product:** \_\_\_\_\_

**Quotient:** \_\_\_\_\_

**Difference:** \_\_\_\_\_

1)  $5x^3 + 4$  x is the \_\_\_\_\_ 5 is the \_\_\_\_\_ 3 is the \_\_\_\_\_ 4 is the \_\_\_\_\_

2) Classify the following expressions as a Monomial, Binomial or Trinomial.

a)  $9x + 3y$

b)  $10xz$

c)  $-2$

d)  $7$

e)  $15abc$

f)  $14x + 4y - 3$

3) State whether the given terms are like terms or not like terms.

a)  $8a$  and  $-4a$

b)  $12$  and  $3$

c)  $12xy$  and  $2xz$

d)  $3x$  and  $x$

e)  $4x$  and  $4$

Simplify each expression.

4)  $2x + x$

5)  $8y + 4 + 7$

6)  $3x + 5y$

7)  $x + 3 + x + 15$

8)  $5.6x + 2 + 9.1x$

9) Find the perimeter

6



$x + 3$

Lesson 2: Simplify each expression.

10)  $-8x + 8x$

11)  $4y - 10y + y$

12)  $-\frac{1}{3}x + 9 - 3\frac{4}{9}x + 10$

13)  $-3.9x + 2 + 4.5x$

Lesson 3: Simplify each expression.

14)  $3(5x + 1)$

15)  $-2(3x - 2)$

16)  $-(7x + 4)$

17)  $(-x + 2)3$

18)  $-(8x + 9)$

19)  $\frac{1}{3}(12x - 6)$

20)  $\frac{1}{2}(20x + 10)$

21)  $\frac{1}{5}(20x + 15)$

22) Find the area

5



$6x - 7$

Lesson 5 and 6:

Find the GCF of the numbers given:

22) 20 and 28

23) 16 and 32

24) 40 and 45

Factor:

25)  $8x + 10$

26)  $12 - 16x$

27)  $25x + 30$

28)  $10x + 50$

29)  $3x - 9$

Lesson 4 and 7: Simplify

30)  $5x + 4(2x + 7)$

31)  $-(x - 5) + 4x$

32)  $(3x + 10) + (5x - 4)$

33)  $(5x - 14) - (2x + 6)$

34)  $(x + 8) - (-2x - 7)$

Lesson 8: Translate each expression

35) The difference of  $x$  and 4

36) The quotient of a number( $n$ ) and 15

37) 5 decreased by  $y$

38) The product of 32 and  $x$

39) 5 more than twice a number

40) Six times the sum of  $x$  and 3

41) Four less than five times a number( $x$ ).

42) \$20 divided among ( $x$ ) students.

43) 30 less than five times  $x$ .

44) A painter charges a flat rate of \$100 plus \$20 for each hour of work. Write an expression to represent this situation.

45) The aquarium charges a \$30 entrance fee plus \$10 for each additional activity. Write an expression to represent this situation.

Review: Simplify

46)  $-1 + 10$

47)  $-5 - 9$

48)  $20 \div 2 \cdot 5$

49)  $\frac{(10 \div 2)}{4^2 - 14}$

50)  $4 \cdot -5$

51)  $1.2 \cdot 3$

# Unit 4

# Equations

	Date	Lesson	
		1	One-Step Equations
		2	Two-Step Equations
		3	Two-Step Equations - Day 2
		4	Combine Like Terms & Solve
		5	Combine Like Terms with Negatives
		6	Solving with Distribution
			<b>Quiz</b> (Lessons 1-5)
		7	Solving with Distribution of Negatives
		8	Equations with Decimals
		9	Equations with Fractions
		10	Translate and Solve
			Review
			<b>Test</b>

Lesson 1  
One-Step Equations

---

**AIM: I can solve one step equations by isolating the variable.**

---

**Warm Up:**

---

**Vocabulary**

Inverse Operations: \_\_\_\_\_

\*Remember, whatever you do on one side of an equation \_\_\_\_\_.

Rules:

- |    |       |
|----|-------|
| 1) | _____ |
| 2) | _____ |
| 3) | _____ |
| 4) | _____ |

---

**Examples:**

1)  $x + 3 = 4$                       *check*                      2)  $h - 18 = 25$                       *check*

---

3)  $3m = 27$                       *check*                      4)  $\frac{x}{2} = 15$                       *check*

---

5)  $6 = x + 2$                       *check*                      6)  $12 + x = -10$                       *check*

$$7) -5x = 40$$

*check*

$$8) b - 3 = -7$$

*check*

**Try These: (show all work)**

---

$$1) x - 3 = 12$$

$$2) 4t = 16$$

$$3) n + 6 = 6$$

$$4) 8 = k + 7$$

---

$$5) e - 9 = 10$$

$$6) 12 = p + 30$$

$$7) y + 16 = 26$$

$$8) 5 + r = 10$$

---

$$9) 9 + w = 19$$

$$10) -6x = 36$$

$$11) s + 6 = 4$$

$$12) 5 = d + 10$$

---

$$13) n - 12 = -8$$

$$14) b + 44 = -7$$

$$15) b + 7 = 6$$

$$16) d - 22 = 45$$

---

$$17) r + 88 = 333$$

$$18) m + 736 = 542$$

$$19) t - 121 = -111$$

$$20) k - 88 = -68$$

**Lesson 1 - Homework**

---

**Solve for x: (show all work)**

1)  $g - 10 = 12$

2)  $\frac{x}{7} = 3$

3)  $w + 21 = 50$

4)  $18 = j + 9$

---

5)  $m - 10 = -5$

6)  $14 = n + 7$

7)  $c - 7 = -12$

8)  $x + 4 = -10$

---

9)  $p + 15 = -5$

10)  $5m = 25$

11)  $n - 12 = -36$

12)  $g + 55 = 11$

---

13)  $f + 77 = -75$

14)  $789 - m = 7$

15)  $w + 97 = 132$

16)  $q + 33 = -30$

---

17)  $444 - j = 258$

18)  $250 = 47 + x$

19)  $a + 745 = -55$

20)  $s - 4654 = 477$



**Lesson 2**  
**Two-Step Equations**

---

**AIM: I can solve two step equations by isolating the variable.**

---

**Warm Up:**

---

**Vocabulary:**

Inverse Operations - \_\_\_\_\_

\*Remember, whatever you do one side of an equation \_\_\_\_\_.

Rules:

- |    |       |
|----|-------|
| 1) | _____ |
| 2) | _____ |
| 3) | _____ |
| 4) | _____ |
- 

**Examples:**

1)  $2x + 4 = 8$

2) *check #1*

3)  $7 + 2x = 9$

4)  $\frac{x}{2} + 5 = 13$

---

5)  $2x + 2 = 8$

6) *check #5*

7)  $5 + 2x = 11$

8)  $4 - x = 12$

**Try These:**

1)  $3x - 8 = -32$

2) *check #1*

3)  $-5x + 5 = -45$

4)  $\frac{x}{-5} + 2 = 12$

---

5)  $2x + 4 = 26$

6) *check #5*

7)  $\frac{x}{5} + 2 = 12$

8)  $\frac{x}{2} - 7 = 8$

---

9)  $3x + 5 = 38$

10) *check #9*

11)  $2x + 30 = 50$

12)  $5x - 7 = 52$

---

13)  $-5x + 20 = 55$

14) *check #13*

15)  $\frac{x}{10} - 3 = -7$

16)  $\frac{x}{9} - 3 = -1$

---

17)  $\frac{x}{3} + 6 = 2$

18) *check #17*

19)  $6x + 6 = 12$

20)  $3x - 10 = 11$

## Lesson 2 - Homework

---

1)  $3x + 2 = 26$

2) *check #1*

3)  $\frac{x}{5} + 2 = 7$

4)  $\frac{x}{2} - 7 = 7$

---

5)  $7x - 5 = 44$

6) *check #5*

7)  $2x + 30 = -100$

8)  $10x - 14 = 104$

---

9)  $-7x + 20 = 55$

10) *check #9*

11)  $\frac{x}{10} - 10 = 10$

12)  $\frac{x}{9} - 3 = 0$

---

13)  $\frac{x}{3} + 1 = 2$

14) *check #13*

15)  $\frac{x}{6} + 7 = -5$

16)  $\frac{x}{-2} - 6 = 3$

Lesson 3  
Two-Step Equations - Day 2

---

**AIM: I can solve two step equations by isolating the variable.**

---

Warm Up:

---

Examples: (show all work)

1)  $2x + 4 = 8$

2)  $4y + 3 = 15$

3)  $5 - 2x = 9$

4)  $\frac{x}{2} + 5 = 17$

Check:

Check:

Check:

Check:

---

Try These: (show all work)

1)  $2x - 2 = 12$

2)  $3x - 12 = 12$

3)  $5x + 6 = 21$

4)  $\frac{x}{3} + 7 = 16$

$$5) -x - 9 = 10$$

$$6) -7x + 2 = -19$$

$$7) 4x + 10 = 26$$

$$8) 4 + 3x = 13$$

---

$$9) 9 - 5x = 19$$

$$10) 3x - 17 = 10$$

$$11) \frac{x}{5} + 10 = 15$$

$$12) -11 = 3x + 10$$

---

$$13) \frac{x}{2} - 3 = -11$$

$$14) 2x - 1 = -1$$

$$15) 9x + 7 = -11$$

$$16) 3x + 8 = -10$$

---

$$17) -5 = 2x - 15$$

$$18) 2 - \frac{x}{8} = 0$$

$$19) \frac{x}{6} - 1 = 7$$

$$20) -x - 12 = -8$$

---

### Lesson 3 - Homework

---

$$1) 4x - 4 = 12$$

$$2) 2x - 12 = 10$$

$$3) 3x + 4 = 25$$

$$4) \frac{x}{3} + 6 = 10$$

5)  $-x - 15 = 10$

6)  $10 = -2x + 6$

7)  $-2x + 12 = -26$

8)  $14 + 10x = 4$

---

9)  $-y + 7 = 11$

10)  $3x - 12 = 6$

11)  $\frac{z}{5} + 15 = 15$

12)  $-3 = 3x - 30$

---

13)  $5x - 3 = -13$

14)  $2x + 1 = -5$

15)  $9x + 8 = 71$

16)  $2x - 8 = -6$

---

**Review & Simplify the following:**

17)  $\frac{1}{3}(4 + 3^2 - 1)$

18)  $7a + 2a + a$

19) What is the constant of  $3x - 1$ ?

---

20)  $12 - (-5)$

21)  $12 - |-5|$

22)  $2\frac{3}{7} \div 3\frac{1}{2}$

---

23) The lowest temperature ever recorded in New York City was -15 degrees Fahrenheit on February 9, 1934. The highest temperature recorded was set as high as 106 °F on July 9, 1936 in Central Park. What is the difference between these two temperatures?

Lesson 4  
Combine Like Terms Equations

**AIM: I can simplify each side of the equation by combining like terms and then isolate the variable.**

Warm Up:

What are some important things to remember when we are combining like terms?

- Must have the same Variable and Exponent
- Make sure you include the sign.

Review

- 1) Can we combine  $2d$  and  $8d$ ? \_\_\_\_\_ Why? \_\_\_\_\_  
2) Can we combine  $2$  and  $8d$ ? \_\_\_\_\_ Why? \_\_\_\_\_

Steps to Success

**Step 1:** Make a shape around the terms that have the same variable.

Example:  $\boxed{5k} + 8m + \boxed{3k} - \boxed{7m}$

It is super important that you take the sign in front of the coefficient!

**When there are like terms on the same side of an equation, you must combine them first!!**

Examples:

1)  $3x + 4x = 49$

2)  $9x + x = 60$

3)  $6x - 3x = 18$

4)  $4x + x = 25$

$$5) 8x - 3x + 15 = 45 \quad 6) 3x - 7 = -5 - 8 \quad 7) 4x + 20 = 50 - 10 \quad 8) \frac{x}{10} + 3 = 2 - 4$$

**Try These:**

$$1) 2x + 4 = 5 + 9$$

$$2) 2x + 5x - 4 = 17$$

$$3) 2x + 6 + x = 36$$

$$4) 3x - 7 = 10 + 4$$

$$5) \frac{x}{5} + 2 = 10 + 2$$

$$6) \frac{x}{2} - 7 = 4 + 4$$

$$7) 4x + 5 + x = 55$$

$$8) \frac{x}{9} - 3 = 1 + 2$$

$$9) 2x + 3x = 25$$

$$10) 7x - x = 24$$

$$11) 5x - 2x = 18$$

$$12) 9x - x = 16$$

$$13) -2x + 3 + 3x = 34 + 4$$

$$14) 2x - 14 + 5x = 20 + 1$$



## Lesson 4 - Homework

---

Solve for  $x$ :

1)  $2x + x = 27$

2)  $7x + 2x = 45$

3)  $5x + 2x = 56$

4)  $3x + x = 16$

---

5)  $9x + 2x + 16 = 38$     6)  $2x + 4x - 5 = 13$     7)  $4x + 10 + x = 35$     8)  $3x + 8 + x = 48$

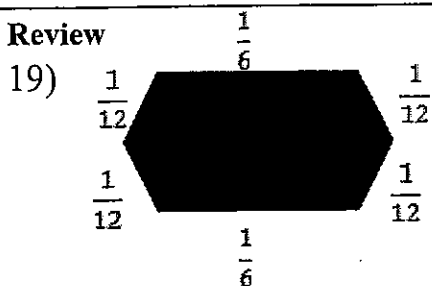
---

9)  $-5x + 3 = 2 - 9$     10)  $-5x + 7 = 5 + 12$     11)  $7x + 20 = 65 - 10$     12)  $9x - 7 = 11 + 9$

---

13)  $\frac{x}{5} + 3 = 19 - 6$     14)  $\frac{x}{3} + 7 = -1 - 4$     17)  $-6x + 3 - 2x = 59$     18)  $9x - 19 + x = 21$

Review



20) Translate: A number  $m$  less than a number  $h$

Find the perimeter: \_\_\_\_\_

21)  $9(3 - 2 \cdot 4)$

Lesson 5  
Combine Like Terms with Negatives

---

**AIM: I can simplify each side of the equation by combining like terms with negatives and then isolate the variable.**

---

Warm Up:

---

What are some important things to remember when we are combining like terms?

- Must have the same Variable and Exponent
- Make sure you include the sign.

**\*\*When there are like terms on the same side of an equation, you must combine them first\*\***

---

Examples:

1)  $-21x - 6x = 54$

2)  $5y - 10y + 6y = 22$

3)  $m - 9m + 6m - 7m = -72$

---

Try These:

1)  $-7p + -3p = 200$

2)  $9k - 15k + 2k = 16$

3)  $15y - 10y + 3y = -64$

$$4) 14x - 10x - 7x + x = 44$$

$$5) 12y + 8y - 25y = -40$$

$$6) 16y + 18y - 10y + 2y = 78$$

---

$$7) -27 = 2x - 7 - 6x$$

$$8) -8x - 8 - x = 5 + 5$$

$$9) 3x - 4x - 3 = 18$$

---

$$10) 3x - 5x + 16 = 32$$

$$11) 2x - 4x - 6 = 18$$

$$12) 2x + 3 - 3x = 34 + 4$$

## Lesson 5 - Homework

---

**Solve:**

$$1) -20 = -4x - 6x$$

$$2) 6 = 1 - 2n + 5$$

$$3) -2 = -9 + 7x - 8x$$

---

$$4) a - 5a + 5 = 21$$

$$5) 8m - 6 - 14m = -42$$

$$6) -1 = 4p + 3p - 8$$

---

$$7) -3x = -12 - 6$$

$$8) 14 = -p + 8$$

$$9) -7 + 4x = 9$$

---

$$10) 5p - 8p = 4 + 14$$

$$11) -4 = -9 + p - 6p$$

$$12) 2x - 3x = 55 - 3$$

---

$$13) -5 = -48 - 40n - 3n$$

$$14) -1 - 7x + 42 + x = 36$$

$$15) -12x - 9 + 24x = 39$$

Lesson 6  
Solving with Distribution

---

**AIM: I can simplify each side of the equation by distributing and then isolate the variable.**

---

Warm Up:

**Steps:**

1. Distribute (If possible)
2. Combine Like Terms on Each Side
3. Isolate The Variable (Inverse Operations)

Examples:

---

1)  $3(2x + 4) = 60$       2)  $30 = 2(x + 5)$       3)  $2 + 2(x - 4) = 14$       4)  $2(5 - 2x) = 21$

---

5)  $3 + 2(3x - 10) = 7$     6)  $3(x - 7) = 9$       7)  $5(2x - 5) = 55$       8)  $2(2x + 4) = 20$

---

9)  $3(x + 2) = 27$       10)  $7(2x - 5) = 35$       11)  $4(x + 5) = 40$       12)  $5(2x + 6) = 40$

**Try These:**

---

13)  $8 + 2(x + 5) = 16$    14)  $3(x + 3) = 21$    15)  $2 + 3(6 - 5x) = 50$    16)  $30 = 2(x + 5)$

---

17)  $9 = 2(x - 3)$    18)  $3(x - 3) = 6$    19)  $2(4x + 1) = 14$    20)  $2(5x + 4) = 48$

---

21)  $60 = 3(x + 9)$    22)  $3(4x + 2) = 30$    23)  $4(x + 2) = 24$    24)  $54 = 6(2x + 1)$

---

**Lesson 6 - Homework**

**Solve:**

1)  $6(2x + 4) = 60$    2)  $60 = 4(x + 5)$    3)  $14 + 4(5 - 2x) = 50$    4)  $6(x - 3) = 12$

---

5)  $6 + 4(3x - 10) = 14$    6)  $5(x - 7) = 10$    7)  $-20 = 2(x + 5)$    8)  $2(x + 5) = 0$

$$9) 4(x + 2) = 28$$

$$10) 45 = 3(2x - 5)$$

$$11) 2(x + 5) = 20$$

$$12) 40 = 4(2x + 6)$$

---

$$13) 16 + 4(x + 5) = 32$$

$$14) 6(x + 3) = 42$$

$$15) 4 + 6(6 - 5x) = 100$$

$$16) 12 = 4(x + 8)$$

---

**REVIEW:**

$$17) 3x + 9 + x = 49$$

$$18) 50 = 10x - x + 23$$

$$19) -24 = 6x - 15 - 5x - 1$$

Lesson 7  
Solving with Distribution of Negatives

---

**AIM: I can simplify each side of the equation by distributing with negatives and then isolate the variable.**

---

Warm Up:

**Steps:**

1. Distribute (If possible)
2. Combine Like Terms on Each Side
3. Isolate The Variable (Inverse Operations)

Examples:

---

1)  $2(x + 5) = 26$

2)  $-(x - 3) = -7$

3)  $-5(x + 4) = 45$

4)  $-21 = -7(x - 3)$

---

5)  $22 = 2(3x - 10)$

6)  $-3(6x - 4) = -24$

7)  $110 = 10(2x - 5)$

8)  $-4(2x + 4) = 40$



---

9)  $2(x + 2) = 14$       10)  $-3(4x - 5) = 39$       11)  $-4(x + 5) = 40$       12)  $80 = 5(2x + 6)$

---

**Try These:**

13)  $8 = -2(x + 2)$       14)  $-3(x + 3) = 21$       15)  $60 = -3(x - 4)$       16)  $-2(x - 3) = 20$

---

17)  $-(x + 4) = 10$       18)  $-(x - 3) = 7$       19)  $-2(4x + 1) = 14$       20)  $-3(2x + 2) = 6$

---

21)  $3(2x - 4) = -24$       22)  $-4(2x + 6) = 16$       23)  $4(x - 2) = -20$       24)  $-(8x - 2) = 18$

**Lesson 7 - Homework**

---

**Solve:**

1)  $-2(x + 3) = 10$       2)  $25 = -5(x + 2)$       3)  $-3(x - 2) = 27$       4)  $28 = -7(x - 2)$

---

5)  $8 = -(x + 2)$       6)  $-(-3x - 2) = 11$       7)  $-2(3x + 2) = 2$       8)  $-5 = -5(x - 3)$

---

9)  $-2(x + 8) = 44$       10)  $30 = 5(x - 4)$       11)  $-3(x + 4) = 27$       12)  $9(x - 2) = 9$

---

13)  $5(2x - 4) = 20$       14)  $24 = 3(2x - 4)$       15)  $5(2x - 5) = 65$       16)  $-6 = -2(x + 2)$

**Review:**

---

17)  $x + 4x = 35$       18)  $4x + 8 = 10 + 18$       19)  $7x + 5 = 61$       20)  $\frac{x}{3} - 2 = 10$

---

21)  $6x + 4 + x = 53$       22)  $3(x + 4) = 48$       23)  $4(5x - 2) = 32$       24)  $2(2x + 4) = 24$

Lesson 8  
Equations with Decimals

---

**AIM: I can solve equations with decimals.**

---

Warm Up:

**Steps:**

1. Distribute (If possible)
2. Combine Like Terms on Each Side
3. Isolate The Variable (Inverse Operations)

Examples:

1)  $2.5 + x = 10.5$

2)  $.5x + 2x - 4 = 6$

3)  $10.6 = x - 7.4$

---

4)  $.5 + .2x = .9$

5)  $4.5 + x = 12$

6)  $.9 - 10x = -9.1$

---

$$7) .3x = 9$$

$$8) .23x + .37x - .1x = .2 - .41$$

$$9) -20 = .2(10x - 30)$$

---

**Try These:**

$$10) z + 1.25 = -9.54$$

$$11) c - 14.59 = -88.22$$

$$12) 14.9 - x = 15.1$$

---

$$13) 2t + 9.4 = 39.8$$

$$14) 3.25k + 5.75k = 72$$

$$15) 7a = 1.4$$

---

$$16) .5(2x + 3) = 4.5$$

$$17) 3x = -2.4$$

$$18) .25(12x + 8) = 17$$

## Lesson 8 - Homework

---

1)  $9 - 79.2 = x$

2)  $-1.30 + v = -9.3$

3)  $b + 4 = 25.65$ 

---

4)  $n - 14 = -7.7$

5)  $q + 11.25 = 5.3$

6)  $-4x = 16$ 

---

7)  $3y + 13.6 = 40.6$

8)  $g - 1.68 = -34.44$

9)  $.5x + 2x - 4 = 6$ 

---

10)  $138.75 = 9.25(-6 + t)$

11)  $21 = .5(4x + 6)$

12)  $-.2(10x - 15) = 9$ 

---

### Review:

13) Sal did the following work:

Explain his error.

$$9y - 2 + 4y$$

$$9y - 4y + 2$$

$$5y + 2$$

14) Today it is  $25^{\circ}$ . Last month, it was  $-15^{\circ}$ .

What was the difference in temperature?

15)  $\$25.99 - \$217.47$

**Lesson 9**  
**Equations with Fractions**

---

**AIM: I can solve equations with fractions.**

---

**Warm Up:**

**Examples:**

1)  $j - \frac{3}{5} = \frac{1}{5}$

2)  $h - \frac{3}{8} = \frac{1}{8}$

3)  $g + \frac{1}{9} = \frac{4}{9}$

4)  $\frac{5}{6}x - \frac{1}{6}x = 8$

---

5)  $50 = \frac{2}{3}(3x + 6)$

6)  $54 = \frac{2}{3}(6x - 9)$

7)  $\frac{1}{2}(2x + 2) = 48$

8)  $\frac{1}{3}(9x - 12) = -25$

**Try These:**

1)  $\frac{5}{8} + x = \frac{3}{4}$

2)  $h + \frac{15}{25} = \frac{13}{50}$

3)  $x - \frac{30}{40} = \frac{5}{20}$

4)  $2x + \frac{1}{4} = \frac{1}{8}$

$$5) \frac{1}{4}(12x + 8) = 17$$

$$6) -20 = \frac{1}{5}(10x - 30)$$

$$7) \frac{1}{6}(6x - 18) = -4$$

$$8) 20 = \frac{1}{2}(4x + 8)$$

---

$$9) \frac{2}{3}(6x + 9) = 22$$

$$10) 24 = \frac{3}{5}(5x + 10)$$

$$11) \frac{1}{3}(3x - 6) = 9$$

$$12) -\frac{1}{5}(10x - 15) = 9$$

---

**Lesson 9: Homework**

---

$$1) f + \frac{1}{7} = -\frac{1}{7}$$

$$2) x + \frac{6}{15} = \frac{5}{15}$$

$$3) \frac{2}{3}y - \frac{1}{3}y = 33$$

$$4) m - \frac{3}{4} = \frac{1}{2}$$

---

$$5) \frac{1}{2} = d + \frac{5}{12}$$

$$6) \frac{1}{4} + p = \frac{3}{20}$$

$$7) \frac{1}{4}y + \frac{1}{3} = \frac{1}{12}$$

$$8) k - \frac{4}{7} = \frac{1}{4}$$

$$9) \frac{1}{3}(3x - 6) = 9$$

$$10) 21 = \frac{1}{2}(4x + 6)$$

$$11) -(x - 7) = 12$$

$$12) -\frac{1}{5}(10x - 15) = 9$$

---

13) Drew made fruit punch for 12 people. The punch contains sparkling water and  $\frac{2}{3}$  of a pint of fruit juice per person. If there are  $10\frac{2}{5}$  pints of fruit punch, how many pints of sparkling water did Drew add per person?

---

**Review**

*Write and solve an equation for each:*

14) A tile man is laying an 84 inch border using 12 inch tiles.

How many tiles would need to be placed?

---

15) Student Government sold 175 bags of popcorn at the dance. If they made \$306.25, how much was the cost of each bag of popcorn?



Lesson 10  
Translate and Solve

---

**AIM: I can translate verbal sentences and then solve the mathematical equation.**

---

Warm Up:

---

**Vocabulary for each operation**

+	-	×	÷

**\*\*Switch Words\*\***

*Translate each sentence into an equation, and then solve the equation.*

---

1) Six more than a number is 12.

2) Three times a number is 21.

3) Seven less than a number is 20.

4) Five more than twice a number is 7.

---

5) Six less than half of a number is 12.

6) The product of a number and three-fourths is 12.

---

7) Six more than four times a number is -9

8) The difference between 12 and ten times a number is 52.

## Lesson 10 – Classwork/Homework

---

1) Eleven less than 5 times a number is 24.

2) The quotient of a number and  $-9$  increased by 10 is 11.

---

3) Fifteen more than twice a number is  $-23$ .

4) Five less than the product of  $-3$  and a number is  $-2$ .

---

5) Nine more than  $-8$  times a number is  $-7$ .

6) The difference between 5 times a number and 4 is 16.

---

7) Eleven less than five times a number is 19.

8) Thirteen more than four times a number is  $-91$ .

---

9) Three times half of a number is 21.

10) Twelve less than the quotient of a number and 8.4 is  $-9$ .

---

11) While at the music store, Drew bought 5 CD's all at the same price. The tax on his purchase was \$6 and the total was \$61. Write an equation to represent this situation and solve.

---

12) A taxi service charges \$1.50 plus \$0.60 per minute for a trip to the airport. The total charge is \$13.50.

How many minutes did the ride to the airport take?

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**7R Unit 4 Review Sheet**

**Solve and Check:**

1)  $2 + x = 10$

2)  $x - 7 = 3$

3)  $-5x = 15$

4)  $\frac{x}{4} = -10$

5)  $-x = 3$

---

6)  $7m + 3 = 10$

7)  $\frac{x}{7} - 2 = 4$

8)  $8y + 2 = 18$

9)  $\frac{x}{3} - 2 = 7$

---

10)  $2x + 9x = 44$

11)  $3r + 5r = 24$

12)  $d + 3 + 4d = 38$

13)  $6c + 12 = 22 + 20$

---

14)  $3(5z - 2) = 24$

15)  $2(3x + 2) = 13 + 15$

16)  $-(x + 5) = 16$

17)  $-4(2h + 2) = 16$

---

18)  $5y + 3 - y = -41$

19)  $\frac{x}{3} - 5 + 11 = -12$

20)  $\frac{1}{5}(5x - 15) = 32$

21)  $\frac{2}{3}(6x - 18) = 16$

---

22)  $0.5x - 1.5 = 8.5$

23)  $-3.7 - 0.7x = -5.8$

24)  $3.2x + 1.8x + 4.2 = 15.2 + 4$

---

25)  $\frac{5}{6}x - \frac{1}{6}x = 8$

26)  $7x - (3x - 6) - 2 = -20$

27)  $-10 - 2 = \frac{1}{2}(4x - 4) - 4x$

**Write and solve an equation for each:**

---

28) Three times a number is 21.

29) Seven less than a number is 20.

---

30) Eleven less than five times  $c$  is 19.

31) Thirteen more than four times a number is  $-91$ .

---

32) Three times the sum of a number and 2 is 27.      33) Five less than the product of  $-3$  and a number is  $-2$ .

---

34) Nine more than  $-8$  times a number is  $-7$ .      35) Five more than twice a number is 7.

---

36) Sally loves to text her friends. Her cell phone company charges her  $\$0.05$  per text. She has to pay a connection fee of  $\$25$  a month. Sally can only afford to pay  $\$40$  a month. What is the greatest number of texts she can send/receive per month?

---

37) Kelly is renting a car and is charged  $\$120$  for the day plus  $\$0.25$  for each mile driven. Write an equation of the situation. Find out how many miles can be driven if Kelly is going to pay  $\$170$ .

---

**Review Chapters 1-3:**

---

38) Mercury freezes at  $-38^{\circ}$  F and boils at  $674^{\circ}$  F. Find the difference between the two temperatures.

---

39) Drew made fruit punch for 12 people. The punch contains sparkling water and  $\frac{2}{3}$  of a pint of fruit juice per person. If there are  $10\frac{2}{5}$  pints of fruit punch, how many pints of sparkling water did Drew add per person?

---

40) Student Government sold 175 bags of popcorn at the dance. If they made \$306.25, how much was the cost of each bag of popcorn?

---

41) Evaluate the expression, if  $r = 5$ ,  $s = 7$ , and  $t = 10$ .

$$3(rs) - t$$

---

42) Simplify:

a)  $7x + 9x$

b)  $-6x - x$

c)  $\frac{3}{5} + \frac{9}{10}$

d)  $\frac{\frac{3}{4}}{\frac{4}{7}}$   
 $\frac{12}{12}$

---

43)  $(13.55)(-2.6)$

---

44)  $32.37 + 11.765$

---

45)  $25.67 - 3.94$

46)  $\frac{-24}{.3}$

---

Name: \_\_\_\_\_

7R unit 1 and 2 review

1. The value of the expression  $|-20| - |6|$  is

1. 26    3. -14

2. 14    4. -26

2. Charles wants to change  $\frac{51}{7}$  to a mixed number. What operation(s) does Charles have to use?

1. + and -

2. + and  $\times$

3.  $\div$  only

3. Kofi is one of the best baseball players in his league. His last three pitches have been clocked at 71.025 mph, 72.35 mph, and 71.95 mph. What is the difference between the fastest and slowest pitches that were clocked?

1. 3.85 mph    3. 2.57 mph

2. 0.925 mph    4. 1.325 mph

4. What number is the greatest distance from zero on a number line?

1. -45    3. 15

2. -50    4. 47

5. Multiply and answer in simplest form:

$$\frac{3}{8} \times \frac{2}{5} = ?$$

1.  $\frac{1}{8}$

2.  $\frac{5}{40}$

3.  $\frac{3}{20}$

4.  $\frac{5}{13}$

6. Which statement below is *true*?

1.  $12.402 > 12.47$     3.  $16.909 < 16.95$

2.  $14.07 < 14.009$     4.  $18.83 > 18.96$

7. In science class, Khalil measures the length of an earthworm to be 8.763 inches. If his teacher asks him to record the earthworm's length to the nearest hundredth of an inch, what should Khalil write down?

1. 8.7 inches    3. 8.76 inches

2. 8.8 inches    4. 8.77 inches



8. The Women's 100 meter-run results were posted in the June edition of the *Track & Field Newsletter*. The scores were: 11.9, 11.5, 11.4, 11.0 (all in seconds). If the times were posted in order from *shortest to longest* time, which would be correct?

1. 11.9, 11.5, 11.4, 11.0
2. 11.5, 11.4, 11.0, 11.9
3. 11.0, 11.4, 11.5, 11.9
4. 11.4, 11.5, 11.9, 11.0

9. If  $r = 2$  and  $s = -7$ , what is the value of  $|r| - |s|$ ?

1. 5    3.9
2. -5    4. -9

10. Given:  $a = 5$ ,  $b = 6$ , and  $c = 7$

Evaluate:  $c - a + b$

1. 4    3. 18
2. 8    4. 23

11. Choose all the numbers that have a 2 in the *thousandths* place:

- 3.512
- 14.053
- 531.202
- 1.351
- 0.154
- 23.345

12. Simplify the fraction  $\frac{12}{36}$ .

1.  $\frac{2}{6}$
2.  $\frac{6}{18}$
3.  $\frac{1}{3}$
4.  $\frac{3}{4}$

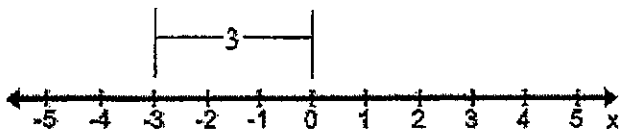
13. Add:  $134.56 + 75 + 22.59$

1. 157.90    3. 232.15
2. 231.05    4. 907.15

14. Which lists the integers correctly from *greatest* to *least*?

1. -19, -16, -6, 6, 14, 19
2. -6, -16, -19, 6, 14, 19
3. 19, 14, 6, -19, -16, -6
4. 19, 14, 6, -6, -16, -19

15. Use the number line to help answer the question.



Which statement best models the number line?

1.  $|3| = 3$
2.  $|-3| = 3$
3.  $|3| = -3$
4.  $-3 = 3$

16. Ashley swam the 50-meter freestyle in 32.84 seconds. What is her time to the nearest tenth of a second?

1. 32.84 seconds
2. 33 seconds
3. 32.7 seconds
4. 32.8 seconds

17. Raquan had a  $9\frac{1}{2}$  inch piece of rope. He cut off  $1\frac{1}{4}$  inches of the rope. How long is the piece of rope that is left?

1.  $10\frac{3}{4}$  inches
2.  $10\frac{1}{2}$  inches
3.  $8\frac{1}{2}$  inches
4.  $8\frac{1}{4}$  inches

18. What is the first step in simplifying the expression  $(2 - 3 \times 4 + 5)^2$ ?

1. square 5
2. add 4 and 5
3. subtract 3 from 2
4. multiply 3 by 4

19. The table shows the American League Batting Champions for 7 years in Major League Baseball.

Player	Batting Average
Edgar Martinez	.356
Alex Rodriguez	.358
Frank Thomas	.347
Bernie Williams	.339
Nomar Garciaparra	.357
Ichiro Suzuki	.372

Who had the *highest* the batting average?

1. Edgar Martinez
2. Alex Rodriguez
3. Frank Thomas
4. Bernie Williams
5. Nomar Garciaparra
6. Ichiro Suzuki

20. Henry is working on a division problem.

$$0.05 \overline{)14.85} \begin{array}{r} 297 \\ \end{array}$$

Which decimal point is in the correct place for Henry's result?

1. 0.297    3. 29.7
2. 2.97    4. 297.

21. Which symbol makes the sentence  $\frac{10}{5} \bigcirc \frac{20}{7}$  true?

1. <    3. =
2. >    4. None of the above

---

Figure 1

Claire and Norah had lunch out on the town on Saturday afternoon. Claire ordered a slice of pizza that cost \$2.25, a salad that cost \$3, and lemonade that cost \$1. Norah ordered a burger that cost \$3.50, fries that cost \$2.75, and a milkshake that cost \$2.50.

---

22. [Refer to figure 1]

Which girl spent more money, and how much more did she spend?

1. Norah; \$2.50    3. Claire; \$2.50
2. Norah; \$6.46    4. Claire; \$6.46

23. Which expression simplifies to 10?

1.  $3 + 7 \times 2$     3.  $5 + 1 \times 7$

2.  $4 + 2 \times 3$     4.  $1 + 4 \times 2$

24. How else can the decimal 0.42424242... be expressed?

1. 0.42

2.  $0.\overline{42}$

3. 0.4

4.  $0.\overline{4}$

25. Find the product of 4.392 and 0.65.

1. 2814.80    3. 2.8548

2. 479.12    4. 2.19600

Name: \_\_\_\_\_

# 7R Unit 2 mixed Review

1.  Add:  $134.56 + 75 + 22.59$

1. 157.90    3. 232.15

2. 231.05    4. 907.15

2.  Which fraction is equivalent to  $\frac{3}{4}$ ?

1.  $\frac{6}{8}$

2.  $\frac{9}{8}$

3.  $\frac{3}{9}$

4.  $\frac{1}{4}$

3.  Simplify the fraction  $\frac{12}{36}$ .

1.  $\frac{2}{6}$

2.  $\frac{6}{18}$

3.  $\frac{1}{3}$

4.  $\frac{3}{4}$

4.  Find the product of 4.392 and 0.65.

1. 2814.80    3. 2.8548

2. 479.12    4. 2.19600

5.  Round 0.6695 to the nearest thousandth.

1. 0.660    3. 0.670

2. 0.661    4. 0.677

6.  Which statement is true?

1.  $\frac{1}{4} = \frac{2}{2}$

2.  $\frac{2}{3} = \frac{6}{9}$

3.  $\frac{1}{2} = \frac{3}{4}$

4.  $\frac{2}{5} = \frac{7}{2}$

7.  Which group of fractions is equivalent to  $\frac{2}{5}$ ?

1.  $\frac{3}{15}, \frac{4}{16}, \frac{5}{17}$

2.  $\frac{4}{10}, \frac{6}{15}, \frac{8}{20}$

3.  $\frac{4}{8}, \frac{7}{10}, \frac{10}{12}$

4.  $\frac{3}{5}, \frac{4}{5}, \frac{5}{5}$

8.  Which improper fraction is the same as the mixed number  $3\frac{1}{4}$ ?

1.  $\frac{2}{3}$

2.  $\frac{46}{2}$

3.  $17\frac{1}{4}$

4.  $\frac{13}{4}$

9.  In simplest form, what is  $\frac{20}{8}$  when changed to a mixed number?

1.  $1\frac{1}{2}$

2.  $1\frac{4}{8}$

3.  $2\frac{1}{2}$

4.  $2\frac{4}{8}$

10.   $9\frac{3}{8} - 4\frac{3}{4} = ?$

1.  $5\frac{5}{8}$

2.  $4\frac{5}{8}$

3.  $5\frac{3}{4}$

4.  $4\frac{3}{4}$

11.  Express your answer in the form of a mixed number.



1.  $\frac{13}{10}$

2.  $\frac{7}{5}$

3.  $1\frac{2}{5}$

4.  $1\frac{3}{10}$

12.  Find the value of  $2.4 \div 0.2$

1. 1.2    3.8

2. 2.2    4.12

13.  Multiply:  $3.5 \times 0.5$

1. 0.70    3.1.75

2. 4.0    4.15.5

14.  What would be the correct decimal placement for the following multiplication?

$$\begin{array}{r} 488 \\ \times 31 \\ \hline 488 \\ 14640 \\ \hline 15128 \end{array}$$

1. 1.5128    3. 151.28

2. 15.128    4. 1512.8

15.  What is the product in simplest form of  $\frac{6}{7} \times$

21?

1. 14

2.  $14\frac{1}{2}$

3. 16

4. 18

16.  What is the reciprocal of 7?

1. 0.7

2. 0.007

3.  $\frac{7}{1}$

4.  $\frac{1}{7}$

17.  Solve:  $4\frac{1}{2} \div \frac{1}{4}$

1. 1

2.  $1\frac{1}{8}$

3. 16

4. 18

18.  Find the product and answer in simplest form.

$$\frac{8}{10} \times \frac{2}{3} = ?$$

1.  $\frac{10}{13}$
2.  $\frac{16}{30}$
3.  $\frac{1}{3}$
4.  $\frac{8}{15}$

19.  Find the result when the sum of 143.024 and 54.9 is subtracted from 300.

1. 297.924    3. 197.624
2. 197.924    4. 102.076

20.  Which group of fractions are all equivalent to  $\frac{1}{2}$ ?

1.  $\frac{2}{4}, \frac{3}{6}, \frac{4}{8}, \frac{5}{10}$

2.  $\frac{1}{2}, \frac{3}{9}, \frac{7}{14}, \frac{11}{22}$

3.  $\frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}$

4.  $\frac{3}{4}, \frac{5}{6}, \frac{9}{12}, \frac{7}{8}$

21.  Which pair of numbers is *not* equivalent?

1.  $2\frac{5}{6} = \frac{17}{6}$

2.  $6\frac{2}{6} = \frac{19}{3}$

3.  $\frac{5}{2} = 2\frac{1}{2}$

4.  $\frac{17}{6} = 3\frac{1}{6}$

22.  Find the value of  $10.2 \div 0.06$ .

1. 17.0    3. 170
2. 160    4. 420

23.  What is  $\frac{1}{8} \div 10$  in simplest form?

1.  $\frac{80}{1}$
2.  $\frac{1}{80}$
3.  $\frac{65}{1}$
4.  $\frac{1}{65}$

24. Round 10.23 to the nearest tenth.

Answer:

25. Round 12.456 to the nearest hundredth.

Answer:

26.  Solve:  $3\frac{1}{2} \div \frac{3}{9}$

1.  $10\frac{1}{2}$
2.  $11\frac{1}{2}$
3.  $1\frac{1}{6}$
4.  $1\frac{2}{6}$

27.  There are 28 students in Mrs. Stanley's class.  $\frac{1}{7}$  of them got a "B" in math class. How many students got a "B"? Answer in simplest form.

1. 5    3. 3
2. 6    4. 4

28.  Simplify the expression below:

$$\frac{1}{2} - \left(\frac{3}{8}\right) + \left(\frac{1}{2}\right)$$

1.  $\frac{5}{24}$
2.  $\frac{-71}{24}$
3.  $\frac{-16}{20}$
4. 0

29.  What is the product of  $3\frac{4}{5} \times 3\frac{2}{3}$ ?

1.  $13\frac{14}{15}$
2.  $11\frac{9}{10}$
3.  $12\frac{14}{15}$
4.  $14\frac{3}{5}$

30.  Simplify the expression:

$$\frac{1}{2} - \left(\frac{3}{8}\right) + \left(\frac{1}{2}\right)$$

1.  $\frac{-9}{5}$
2.  $\frac{-109}{80}$
3.  $\frac{-21}{20}$
4.  $\frac{3}{80}$



Name: \_\_\_\_\_

7R review unit 1, 2 and 3

1.  Which expression translates from "the difference when 16 is subtracted from a number  $n$ "?

- 1.  $16 - n$     3.  $n - 16$
- 2.  $16 \div n$     4.  $n + 16$

2.  What is the product of  $2\frac{1}{2} \times 1\frac{3}{4}$ ?

- 1.  $5\frac{2}{3}$
- 2.  $6\frac{7}{8}$
- 3.  $2\frac{1}{4}$
- 4.  $4\frac{3}{8}$

3. Drag the correct symbol into the box below to make this inequality true.

<	>	=
---	---	---

$5\frac{3}{8}$		$5\frac{3}{8} \times \frac{10}{10}$
----------------	--	-------------------------------------

4.  Which phrase represents  $12n + 5$ ?

- 1. The product of 12 and a number, increased by 5.
- 2. The sum of 12 and a number increased by 5
- 3. The total of 12, a number, and 5.
- 4. The total of 12 increased by 5 and a number.

5. Drag the numbers to the correct places to make the reciprocal of this fraction:  $\frac{7}{10}$

1 2 3 4 5 6 7 8 9 10

Reciprocal:  $\frac{\square}{\square}$

6. Which expressions are equivalent to the expression  $-6x + 8$ ? *Select all that apply.*

$-2(3x + 4)$

$2(-3x + 4)$

$5(x + 1) - 11x + 3$

$x + 2 - 7x + 6$

$8 - 6x$

7.  The sum of  $3x^2 + 4x - 2$  and  $x^2 - 5x + 3$  is

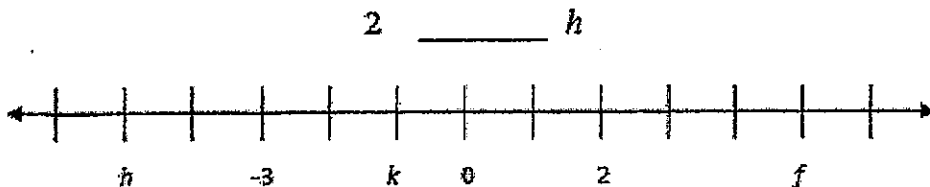
1.  $4x^2 + x - 1$

2.  $4x^2 - x + 1$

3.  $4x^2 + x + 1$

4.  $4x^2 - x - 1$

8.  Refer to the number line below. Which symbol would make the following statement true?



1.  $<$  3.  $=$

2.  $>$  4.  $\leq$

9.  What is the first step in simplifying the expression  $(2 - 3 \times 4 + 5)^2$ ?

- 1. square 5
- 2. add 4 and 5
- 3. subtract 3 from 2
- 4. multiply 3 by 4

10.  The expression  $2x^2 - x^2$  is equivalent to

- 1.  $x^0$
- 2. 2
- 3.  $x^2$
- 4.  $-2x^4$

11.  The lengths of the sides of a triangle are represented by  $3x - 4$ ,  $x + 2$ , and  $4x$ . Express the perimeter of the triangle as a binomial in terms of  $x$ .

- 1.  $8x - 2$
- 2.  $8x + 2$
- 3.  $7x - 6$
- 4.  $6x - 4$

12.  If  $r = 2$  and  $s = -7$ , what is the value of  $|r| - |s|$ ?

- 1. 5
- 2. -5
- 3. 9
- 4. -9

13.  How would you express 5 times a number decreased by  $\frac{1}{3}$  of that same number as a variable expression?

- 1.  $\frac{1}{3}(5x)$
- 2.  $5x - \frac{1}{3}x$
- 3.  $5 - \frac{1}{3}x$
- 4.  $\frac{1}{3}x - 5$

14. Drag the correct symbol into the box below to make this inequality true.

<	>	=
---	---	---

$4\frac{2}{3}$		$4\frac{2}{3} \times \frac{7}{2}$
----------------	--	-----------------------------------

15.  If  $2x^2 - x + 6$  is subtracted from  $x^2 + 3x - 2$ , the result is

1.  $x^2 + 2x - 8$
2.  $x^2 - 4x + 8$
3.  $-x^2 + 2x - 8$
4.  $-x^2 + 4x - 8$

16.  Last week, Holly brought home three five-pound bags of apples and a four-pound bag of cherries. She made an apple pie and cherry pie for the bake sale. The apple pie called for  $2\frac{1}{2}$  pounds of apples, and the cherry called for  $2\frac{1}{4}$  pounds of cherries. How many pounds of apples and cherries were left after she made the pies?

1.  $4\frac{3}{4}$  pounds of fruit
2.  $2\frac{1}{2}$  pounds of apples and  $1\frac{1}{2}$  pounds of cherries
3.  $12\frac{1}{2}$  pounds of apples and  $1\frac{3}{4}$  pounds of cherries
4.  $2\frac{1}{2}$  pounds of apples and  $2\frac{1}{4}$  pounds of cherries

17.  Find the sum of  $3x^2 + 5x - 1$  and  $x^2 - 2x - 7$ .

1.  $2x^2 - 7x - 6$
2.  $-2x^2 - 7x + 6$
3.  $4x^2 - 3x + 8$
4.  $4x^2 + 3x - 8$

18.  An example of an algebraic expression is

1.  $y = mx + b$
2.  $3x + 4y - 7$
3.  $2x + 3y \leq 18$
4.  $(x + y)(x - y) = 25$

19. Drag and drop expressions from the box so that each is next to its equivalent expression.

$30a + b$	$b(2a + 5c)$	$18b + 27a$	$18a + 27b$
$a(2b + 5bc)$	$a(4 + 15b)$	$a(4 + 15ab)$	$30a + 6b$

A.	$4a + 15ab =$	
B.	$2ab + 5bc =$	
C.	$6(5a + b) =$	
D.	$9(2b + 3a) =$	

20. Drag the numbers to the correct places to solve this multiplication problem. Reduce to lowest terms.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

$$6 \frac{1}{2} \times 1 \frac{4}{9} = \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array}$$

21.  Samuel is  $68 \frac{5}{8}$  inches tall. His younger brother, Spencer, is  $6 \frac{3}{4}$  inches shorter. How tall is Spencer?

- $62 \frac{1}{4}$  inches
- $61 \frac{7}{8}$  inches
- $62 \frac{5}{8}$  inches
- $60 \frac{3}{4}$  inches

22.  Refer to the number line below. Which symbol would make the following statement true?

$$k \text{ _____ } f$$



1. < 3. =

2. > 4.  $\geq$

23.  Which of the following is the greatest common factor of 16 and 40?

1. 16 3. 8

2. 2 4. 4

24.  Which symbol would go in the circle to make this sentence true?

$$\frac{4}{3} \bigcirc \frac{8}{5}$$

1. < 3. =

2. > 4. None of the above

25.  What is the value of the expression  $|-5x + 12|$  when  $x = 5$ ?

1. -37 3. 13

2. -13 4. 37

26.  The expression  $15 - 3[2 + 6(-3)]$  simplifies to

1. -45 3. 63

2. -33 4. 192

27.  Which verbal expression can be represented by  $2(x - 5)$ ?

1. 5 less than 2 times  $x$

2. 2 multiplied by  $x$  less than 5

3. twice the difference of  $x$  and 5

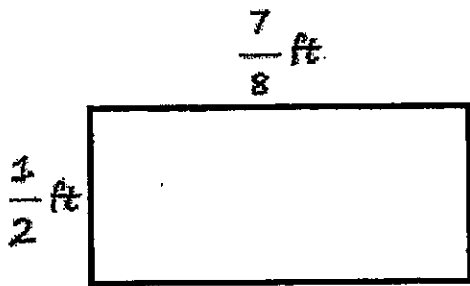
4. the product of 2 and  $x$ , decreased by 5

28.  Jose wants to ride his bike a total of 50 miles this weekend. If he rides  $m$  miles on Saturday, which expression represents the number of miles he must ride on Sunday?

1.  $m - 50$  3.  $50 - m$

2.  $m + 50$  4.  $50m$

29.  Marty got a new board game. What is the area of the board game?



1.  $\frac{3}{8}$
2.  $\frac{11}{15}$
3.  $\frac{7}{16}$
4.  $\frac{2}{3}$

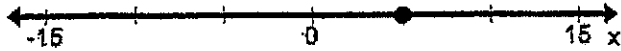
30.  Teddy's hardware store tracks the amount of nails that are sold on a weekly basis. The chart below shows the totals from each day last week:

Monday	4 $\frac{3}{4}$ lbs.
Tuesday	6 $\frac{1}{2}$ lbs.
Wednesday	9 $\frac{1}{4}$ lbs.
Thursday	5 $\frac{3}{4}$ lbs.
Friday	8 $\frac{1}{4}$ lbs.
Saturday	7 $\frac{1}{2}$ lbs.

How many more pounds of nails were sold on Wednesday as compared to Friday?

1.  $1\frac{3}{8}$  pounds
2.  $17\frac{7}{8}$  pounds
3.  $1\frac{1}{2}$  pounds
4.  $9\frac{5}{8}$  pounds

31.  Which number is the opposite of the number represented by the point on this number line?



1. -5    3. -10  
2. 5    4. 10

32.  The expression  $(2x^2 + 6x + 5) - (6x^2 + 3x + 5)$  is equivalent to

1.  $-4x^2 + 3x$   
2.  $4x^2 - 3x$   
3.  $-4x^2 - 3x + 10$   
4.  $4x^2 + 3x - 10$

33.  A model rocket was launched from the ground and shot 150 feet straight up. It then fell back down to the ground and landed in the same place from which it was launched. Which expression shows how far the rocket traveled?

1.  $|150| - |150|$   
2.  $|150| - |-150|$   
3.  $|150| + |-150|$   
4.  $|150| + (-|150|)$

34.  Which list orders the following set of numbers from *least* to *greatest*?

$$\frac{9}{5}, 1\frac{2}{3}, 0.892, 2.3, 1.2$$

1. 0.892, 1.2,  $1\frac{2}{3}$ ,  $\frac{9}{5}$ , 2.3  
2. 0.892, 1.2,  $1\frac{2}{3}$ , 2.3,  $\frac{9}{5}$   
3. 0.892, 1.2, 2.3,  $\frac{9}{5}$ ,  $1\frac{2}{3}$   
4. 1.2, 0.892,  $1\frac{2}{3}$ ,  $\frac{9}{5}$ , 2.3

35.  How could you rewrite the expression  $(30)(97)$  to use the distributive property?

1.  $30(100 - 3)$     3.  $30(97 - 97)$   
2.  $30(90 - 3)$     4.  $30(90 - 7)$



36.  Mr. Stanton asked his students to write an algebraic expression on a piece of paper. He chose four students to go to the board and write their expression.

- Robert wrote:  $4(2x + 5) \geq 17$
- Meredith wrote:  $3y - 7 + 11z$
- Steven wrote:  $9w + 2 = 20$
- Cynthia wrote:  $8 + 10 - 4 = 14$

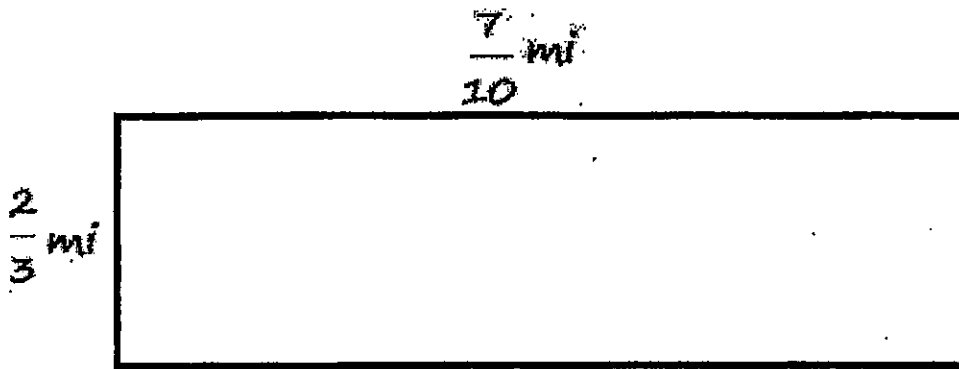
Which student wrote an algebraic expression?

1. Robert      3. Steven  
2. Meredith    4. Cynthia

37.  Which variable expression is the same as the sum of 4 and the product of 6 and  $j$ ?

1.  $4 - 6j$     3.  $4j + 6$   
2.  $4 + 6j$     4.  $4(6j)$

38.  Ivan is going to plant potatoes in the part of his field shown below. What is the area of the potato patch?



1.  $\frac{3}{10}$   
2.  $\frac{11}{12}$   
3.  $\frac{7}{8}$   
4.  $\frac{7}{15}$

39.  The difference between  $25ab$  and  $37ab$  is

1.  $12ab$     3.  $12$   
2.  $-12$     4.  $-12ab$

40.  Which operation is done first in the following expression?

$14 - 1 \times 8 \div 2 + 11$

1. +    3.  $\times$   
2. -    4.  $\div$

