

**Pre-Algebra:** Week of May 18 – May 22, 2020

*Time Allotment: 40 minutes per day*

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

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

## Packet Overview

Date	Objective(s)	Page Number
Monday, May 18	Solve sum and differences, products and quotients	2
Tuesday, May 19	Solving Using Inequalities	6
Wednesday, May 20	Graphing on the Coordinate Plane	9
Thursday, May 21	Calculating Ratios, Proportions and Percents	12
Friday, May 22	Minor Assessment	15

### Notes:

We included space for you to write your work directly in this packet on each day. Show your work where you can. All problems can be done in the packet, so all you need to submit at the end of this week is this completed packet!

\*\*\*Checking/correcting your answers using a red pen is required!

Options to turn in completed packets:

1. Upload it to your Google Classroom! This allows for quicker review, more in-depth feedback and easier communication.
2. Physically turn it back in.

Guided Instruction via Zoom. For example, if you had Pre-Algebra with Mrs. Walters during Period 5, then on Tuesday and Thursday from 11-11:50 you can connect with her via Zoom.

	Monday	Tuesday	Wednesday	Thursday
10-10:50	Period 1	Period 4	Period 1	Period 4
11-11:50	Period 2	Period 5	Period 2	Period 5
11:50-1	Break			
1-1:50	Period 3	Period 6	Period 3	Period 6

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### Academic Honesty

I certify that I completed this assignment  
independently in accordance with the GHNO  
Academy Honor Code.

*Student signature:*

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I certify that my student completed this  
assignment independently in accordance with the  
GHNO Academy Honor Code.

*Parent signature:*

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**Monday, May 18, 2020**

Pre-Algebra Review

Lesson: Positive and Negative Numbers

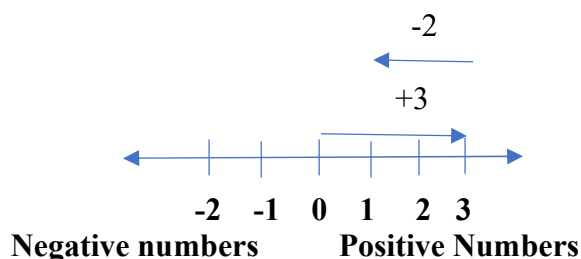
**Objective:** Solve Sum and Differences, Products and Quotients for Positive and Negative Numbers

**Lesson**

**Sum and Differences**

In arithmetic the minus sign always means to subtract, but in algebra we also use the sign to designate that a number is a negative number. Look at the expression:  $3 - 2$


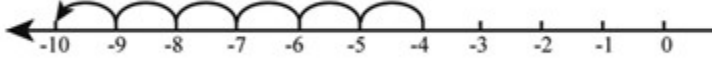
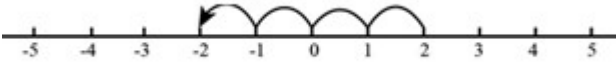
We use the real number line



An arrow representing a number may have any point on the number line as its starting point, as long as it has length and direction indicated by that number. This number can be any number on the real number line in the form of an integer, a decimal, a fraction, etc. The length of the arrow is the absolute value of the number that the arrow represents. The direction of the arrow is determined by the sign of the number.

Let us recall some Rules for adding and subtracting positive and negative numbers.

Property	Addition	Multiplication
Commutative Property	You can add in any order $a + b = b + a$ $2 + 4 = 4 + 2 = 6$	You can multiply in any order $a \times b = b \times a$ $3 \times 4 = 4 \times 3 = 12$
Associative Property	When you add, you can group the numbers in any combination $a + (b + c) = (a + b) + c$ $1 + (3 + 4) = (1 + 3) + 4$	When you multiply, you can group the numbers in any combination $a \times (b \times c) = (a \times b) \times c$ $2 \times (3 \times 5) = (2 \times 3) \times 5$
Identity Property	The sum of zero and any number is the number $a + 0 = a$ $4 + 0 = 4$	The product of 1 and any number is the number $a \times 1 = a$ $3 \times 1 = 3$

Rule 1	Adding two POSITIVE numbers $2 + 4 = 6$	Straight forward addition and retain “+” sign $\boxed{+} + \boxed{+} = \text{Sum with plus sign}$ 
Rule 2	Adding two NEGATIVE numbers $(-4) + (-6) = -10$	Similar to usual addition and retain the “-” sign. That is, $\boxed{-} + \boxed{-} = \text{Sum with minus sign}$ 
Rule 3	Adding one positive number and one negative number $2 + (-4) = 2 - 4$ $= -2$	Similar to usual subtraction and retain the sign of larger number. That is, $\boxed{+} + \boxed{-} = \text{Difference with larger number sign}$ $\boxed{-} + \boxed{+} = \text{Difference with larger number sign}$ 

### Products and Quotients

Expression	Product	Example
positive $\times$ positive	positive	$2 \times 3 = 6$
negative $\times$ negative	positive	$-2 \times (-3) = 6$
negative $\times$ positive	negative	$-2 \times 3 = -6$
positive $\times$ negative	negative	$2 \times (-3) = -6$

Expression	Quotient	Example
positive $\div$ positive	positive	$6 \div 2 = 3$
negative $\div$ negative	positive	$-6 \div (-2) = 3$
negative $\div$ positive	negative	$-6 \div 2 = -3$
positive $\div$ negative	negative	$6 \div (-2) = -3$

Division involving Zero	
Division by zero is undefined	<p>Explanation comes from checking answer:</p> $\frac{-12}{4} = -3 \quad \left  \quad \frac{0}{-12} = 0 \quad \left  \quad \frac{-12}{0} = ? \text{ Undefined} \right. \right.$ $(4)(-3) = -12 \quad \left  \quad (-12)(0) = 0 \quad \left  \quad (0)(?) = -12 \text{ Impossible!!} \right. \right.$

### Absolute Value

Absolute value is a number's distance from zero Ex.  $|-16.2| = 16.2$  and  $\left|\frac{1}{2}\right| = \frac{1}{2}$

**Exercises for Monday, May 18, 2020** \*PLEASE answer here and not on an answer packet. Thanks!  
Chapter Test, Page 101, #1-22, 26-27, 32-33

<p>Replace <u>?</u> with =, &gt; or &lt; to make a true statement.</p> <p>1. <math>-7 \underline{\quad} 8</math>      2. <math>4 \underline{\quad} -5</math>      3. <math>0 \underline{\quad} -6</math>      4. <math>-2 \underline{\quad} -3</math></p>	
<p>Express as an integer.</p> <p>5. <math> -3  =</math>      6. <math> 7  =</math>      7. <math> -12 </math>      8. <math> 0 </math></p>	
<p>Write the numbers in order from least to greatest.</p> <p>9. -6.5, -56, 6.05, -556, -0.6      10. 3.02, -3.2, -23, 0.32, -333</p>	

<b>Find the sum</b> 11. $-8.4 + 36.8 =$  14. $14.6 + 23.1 =$	12. $(-6.3) + (-0.12) =$  15. $0 + -11.5 =$	13. $13.2 + -13.2$  16. $0.89 + -16.1 + -0.94$
<b>Find the difference</b> 17. $26.5 - 8.3 =$  20. $-14 - (-9.5) =$	18. $-4.3 - 20.6 =$  21. $41 - (-11.67) =$	19. $0 - 13.6 =$  22. $-6.4 - (-6.4) =$
<b>Find the Product and the Quotient</b> 26. $12(-6.37) =$	27. $-30(0.45) =$	32. $69.3 \div (-3) =$
33. $-18 \div (-2.5) =$		

**Tuesday, May 19, 2020**

Pre-Algebra Review

Lesson: Equations and Inequalities

**Objective:** Solving Using Inequalities**Lesson****Reciprocal**The reciprocal of 8 is  $\frac{1}{8}$ The reciprocal of  $\frac{1}{2}$  is  $\frac{1}{1/2} = \frac{2}{1}$  or 2The reciprocal of  $-\frac{5}{3}$  is  $\frac{1}{-5/3} = -\frac{3}{5}$ **Dividing is the Same as Multiplying by the Reciprocal:**

$$\frac{2}{3} \div \frac{5}{4}$$

First use "Keep, Change, Flip" to rewrite as a multiplication problem.

$$\downarrow \downarrow \downarrow$$

$$\frac{2}{3} \cdot \frac{4}{5} = \boxed{\frac{8}{15}}$$

Multiply straight across.  
Simplify when needed.**To cross-multiply two fractions:**

1. **Multiply** the numerator of the first **fraction** by the denominator of the second **fraction** and jot down the answer.
2. **Multiply** the numerator of the second **fraction** by the denominator of the first **fraction** and jot down the answer.

$$\frac{x}{3} = \frac{3}{4}$$

**DISTRIBUTIVE PROPERTY**

allows us to get rid of parentheses  
by bringing a multiplication  
from outside to inside a parenthesis

$$a(b+c) = ab + ac \quad \text{and} \quad (b+c)a = ba + ca$$

$$a(b-c) = ab - ac \quad \text{and} \quad (b-c)a = ba$$

**INEQUALITIES**

**Equivalent Inequalities:** An inequality that has  
the same solution as the original inequality.

$$x + 2 < 4$$

$$\begin{array}{r} -2 \quad -2 \\ \hline \end{array}$$

$$x < 2$$

(subtraction property of inequality)

**Multiplying Inequalities:**

$$\begin{array}{r} 2 \cdot 4 < 6 \cdot 2 \\ \hline 8 < 12 \end{array}$$

Multiplying by a positive  
doesn't change the inequality.

$$\begin{array}{r} \frac{4}{2} < \frac{6}{2} \\ \hline 2 < 3 \end{array}$$

Dividing by a positive  
doesn't change the inequality.

**Dividing Inequalities:**

**Flip Inequality sign when:**

1. You need to move the letter (variable) to the left

$$3 < x$$

$$-5 > p$$

$$x > 3$$

$$p < -5$$

2. You multiply or divide by a negative number

$$-\frac{1}{3}x \leq 4$$

$$-2x > 4$$

$$x \geq -12$$

$$x < -2$$



**Exercises for Tuesday, May 19, 2020** Use the space below...no extra paper needed!

**Chapter Test, Page 177, #1-10, 13, 16-19, 24; Pg 509, 74, 75, 76**

**Use one of the properties of equality to form a true sentence**

1. If  $-8 + x = 9$ , then  $x =$  \_\_\_\_\_ 2. If  $8 + y = 14$ , then  $y =$  \_\_\_\_\_

3. If  $5m = 35$ , then  $m =$  \_\_\_\_\_ 4. If  $-28 = 4d$ , then \_\_\_\_\_ =  $d$

**Simplify the expressions on both sides of the equation to obtain an equivalent equation.**

5.  $-2a - 3 + 4 + 6a = 27$  6.  $3(x + 7) = -41 - 8$

**Solve the Equation**

7.  $m - 21 = -16$  8.  $32 = a + 9$  9.  $-11 + r = 25$

10.  $7p = 49$  13.  $-3b + 4 = -19$  16.  $3(5t - 6) = 72$

**Solve the Inequality**

17.  $a + 12 < 19$  18.  $\frac{m}{4} > -8$  19.  $-3y \leq 42$

**Solve and Graph the solutions**

24.  $-35 \leq -5(r + 8)$

74.  $-4\frac{2}{7} \times 2\frac{1}{4}$  75.  $\frac{4}{9} \div \frac{2}{9}$  76.  $-\frac{3}{8} \div -\frac{5}{16}$

**Wednesday, May 20, 2020**

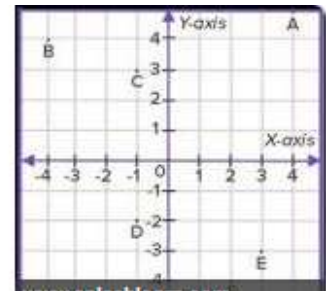
Pre-Algebra Review

Lesson: The Coordinate Plane

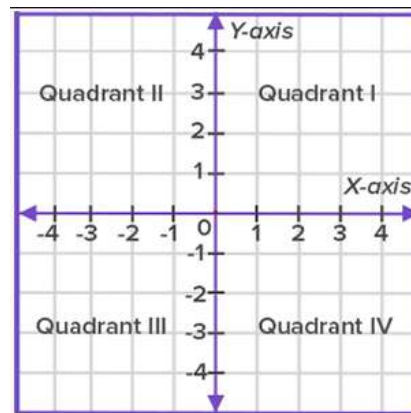
**Objective:** Graphing on the Coordinate Plane. *Please watch the Teacher Video of Google Classroom!*

**Lesson**

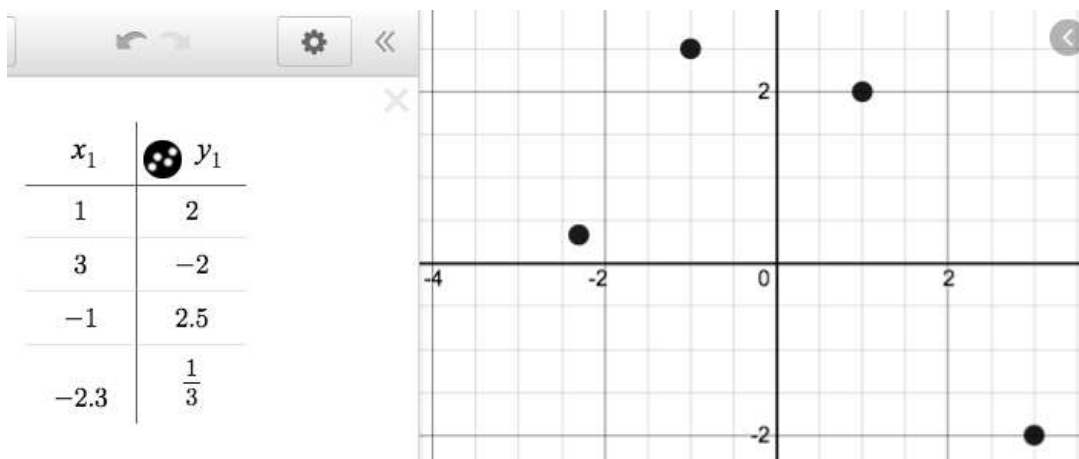
The **coordinate plane** is a two-dimension surface formed by two number lines. One number line is horizontal and is called the x-axis. The other number line is vertical number line and is called the y-axis. The two axes meet at a point called the origin. We can use the **coordinate plane** to graph points, lines, and more.



The x- and y- axes divide the coordinate plane into Quadrants I, II, III, IV



Examples of Plotting Points:

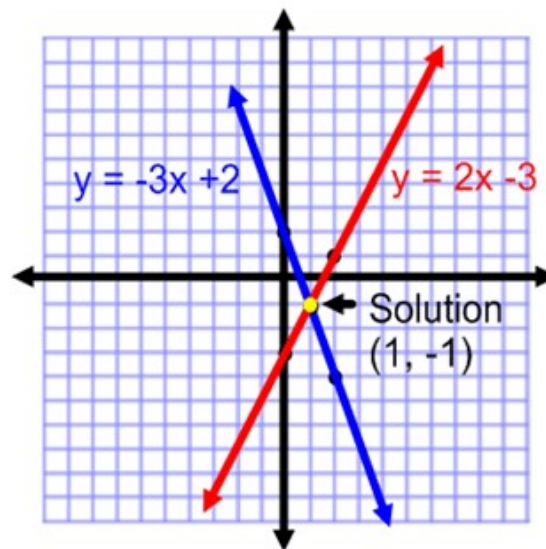


### Example Graphing a System of Equations

$$y = -3x + 2$$

$$y = 2x - 3$$

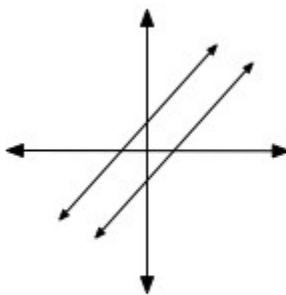
Step 1: Graph each equation.



Step 2: Find the point of intersection. This is your solution.

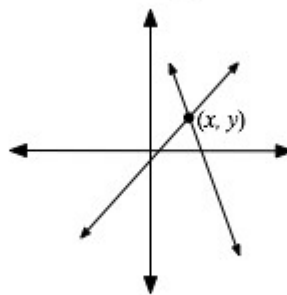
The solution to this system of equations is  $(1, -1)$ .

**Parallel Lines**



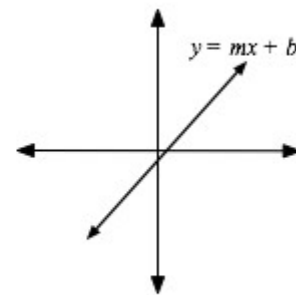
No points in common.  
Solution:  $\emptyset$

**Intersecting Lines**



One point in common.  
Solution:  $(x, y)$

**Coincident Lines**



Infinitely many points in common.  
Solution:  $\{(x, y): y = mx + b\}$

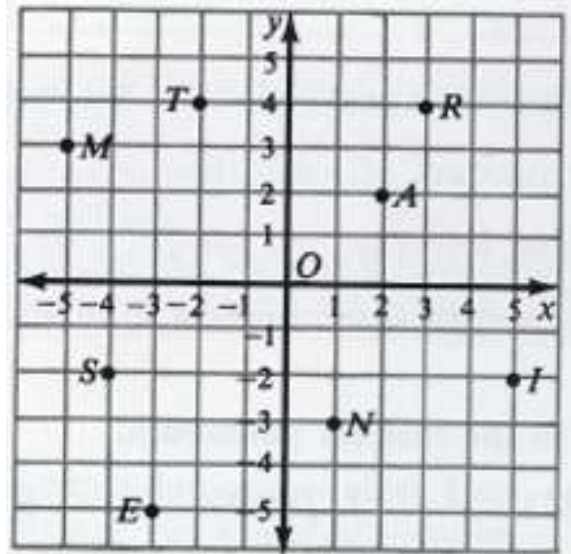
**Exercises for Wednesday, May 20, 2020**  
**Chapter Test, Page 301, #1-8, 12-13, 15-16**

**Give the coordinates of the point.**

1. *I*      2. *M*      3. *E*      4. *R*

**Name the point for the ordered pair.**

5.  $(-2, 4)$       6.  $(1, -3)$   
7.  $(-4, -2)$       8.  $(5, -2)$

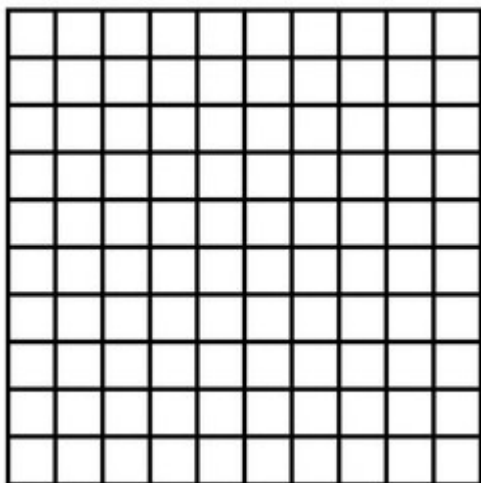


Please write you answers here:

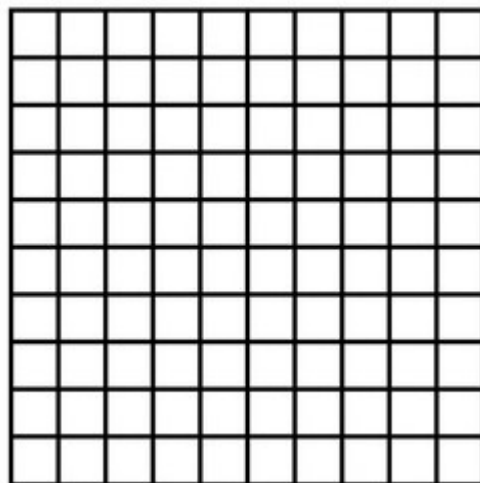
1.      2.      3.      4.      5.      6.      7.      8.

**Graph the equation on a coordinate plane. Use a separate set of axes for each equation.**

12.  $y - 3x = 7$

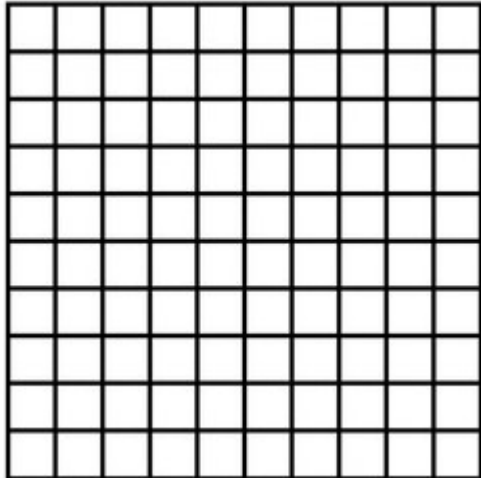


13.  $4y - x = 8$

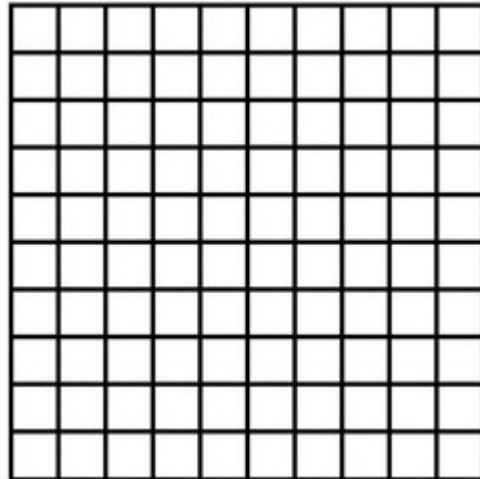


Use a graph to solve the system. Do the lines intersect or coincide, or are they parallel?

15.  $x - 2y = 0$   
 $2x + y = 5$



16.  $3 - y = -4$   
 $3x - y = 3$



**Thursday, May 21, 2020**

Pre-Algebra Review

Lesson: Ratio, Proportion and Percent

**Objective:** Calculating Ratios, Proportions and Percents

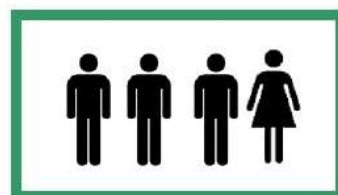
**Lesson:**

## RATIO

**Definition:** A ratio compares numbers in a set order.

**Example:** The ratio of men to women in the green box is 3:1.

The ratio of women to men in the green box is 1:3.



## PROPORTIONS

Equations with 2 equal ratios

$$\frac{2}{3} = \frac{4}{6}$$

$$\frac{5}{15} = \frac{1}{3}$$

Proportions can involve variables.

$$\frac{x}{8} = \frac{5}{16}$$

$$\frac{x+3}{7} = \frac{x-2}{4}$$

**Remember: How to convert a percentage to a decimal**

- Remove the percentage sign and divide by 100
- $15.6\% = 15.6/100 = 0.156$

**Remember: How to convert a decimal to a percentage**

- Multiply by 100 and add a percentage sign
- $0.876 = 0.876 * 100 = 87.6\%$

**Distance-rate-time Formula:**

$$d = rt$$

( distance = rate x time )

### Exercises for Thursday May 21, 2020

*Chapter Test, Page 267, #1-7, 10-13, 18-19, 23*

State each ratio as a fraction in lowest terms.

1.  $\frac{46}{60} =$

2. 16 mm to 3 cm

3. 18:15

**Solve each Proportion**

4.  $\frac{n}{63} = \frac{42}{27}$

5.  $\frac{4.8}{r} = \frac{12}{3}$

6.  $\frac{7}{21} = \frac{t}{9}$

7. A train travels 442 km in  $5\frac{1}{2}$  hours. Find the average speed.

**Express each fraction or decimal as a percent.**

10.  $0.93 =$

11.  $0.0724 =$

12.  $\frac{25}{1000} =$

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

**Use OCNAP to solve**

18. The total cost of a camera, including sales tax of 6% of the selling price, is \$169.55. What is the selling price?

19. Margaret Sherman's annual business expenses have increased from \$2500 to \$3175. What is the percent of increase?

**Use proportions to solve**

23. This term, 36% of students in one class are on the honor roll. If 9 students are on the honor roll, how many students are in the class?

**Friday, May 22, 2020**

Pre-Algebra Review

Lesson: Minor Assessment

**\*\*\*NO CALCULATORS\*\*\***Please **both** circle your answer AND put your answer on the answer sheet which is located on the last page.**Simplify the following expressions and choose the BEST final answer.**

---

1.  $125 + (-62) + 75 + (-38)$

A. 300

B. 100

C. 176

D. 224

E. 200

---

2.  $2.25(3.1)$

A. .06975

B. .6975

C. 6.975

D. 69.75

E. 697.5

---

3.  $42.7 \div 0.07$

A. .610

B. 6.10

C. 61.0

D. 610

E. 6100

---

4.  $5\frac{2}{3} - 2\frac{5}{8}$

A.  $3\frac{3}{8}$ B.  $3\frac{1}{16}$ C.  $3\frac{1}{24}$ D.  $1\frac{1}{3}$ E.  $1\frac{1}{24}$ 

---

5.  $\left(6\frac{3}{4}\right)\left(1\frac{1}{3}\right)$

A. 9

B.  $6\frac{3}{12}$ C.  $\frac{108}{12}$ D.  $6\frac{1}{4}$ E.  $\frac{54}{6}$ 

---

6.  $\frac{21}{56} \times \frac{20}{25}$

A.  $\frac{42}{140}$ B.  $\frac{12}{40}$ C.  $\frac{21}{70}$ D.  $\frac{3}{100}$ 

E. 0.3

---

7.  $\frac{3}{7} \div \frac{9}{20}$

A.  $\frac{20}{21}$ 

B. 1

C.  $\frac{21}{20}$ D.  $\frac{60}{63}$ E.  $\frac{63}{60}$



---

Select the **best** response *and* reason out of the choices given in each problem.

---

8.  $-5.41 + 5.05$  will be

- A. **positive** because you end up on the right side of the number line.  
B. **negative** because the absolute value of 5.05 is larger.  
C. **negative** because the absolute value of  $-5.41$  is larger.  
D. **positive** because the absolute value of 5.05 is larger.
- 

9.  $4 \cdot \left(-\frac{1}{3}\right)$  will be

- A. **positive** because the absolute value of 4 is larger  
B. **negative** because you are taking one third of  $-4$ .  
C. **positive** because you are taking the 4 groups of  $-\frac{1}{3}$   
D. **negative** because you are taking the 4 groups of  $-\frac{1}{3}$
- 

**Simplify the following expressions.**

---

10.  $5 - (-15.3)$

- A. 10.3      B.  $-10.3$       C. 20.3      D.  $-20.3$       E. 76.5
- 

11.  $-8.3 - 5.2$

- A.  $-13.5$       B.  $-3.1$       C.  $-3.13$       D. 13.5      E. 3.1
- 

12.  $16 - 24.3$

- A. 8.3      B.  $-8.7$       C. 8.7      D.  $-8.3$       E.  $-40.3$
- 

13.  $-3 - (-8.2)$

- A. 5.2      B.  $-5.2$       C.  $-11.2$       D. 11.2      E. 24.6
- 

14.  $3 + 7(r - 4)$

- A.  $10r - 40$       B.  $-10r - 28$       C.  $7r - 25$       D.  $7r - 31$       E.  $7r - 18$
- 

15.  $13 - 5x + -17$

- A.  $-22x$       B.  $-5x - 4$       C.  $-9$       D.  $5x + 30$       E.  $8x - 17$
-

---

16.  $(16p)(5q)$

- A.  $21pq$       B.  $80pq$       C.  $21p + q$       D.  $80(p + q)$       E.  $80p^2$
- 

17.  $(-2)(6)(-1)(8)$

- A.  $-96$       B.  $-48$       C.  $48$       D.  $-84$       E.  $96$
- 

18.  $(3^2 \cdot 2^2) \div (3 \cdot 12)$

- A.  $\frac{2}{3}$       B.  $0$       C.  $144$       D.  $\frac{24}{36}$       E.  $1$
- 

19. What number needs to be distributed in the following expression?  $8 - 5(4d + 3)$

- A.  $-5$       B.  $3$       C.  $5$       D.  $-3$       E.  $8$
- 

20. Simplify:  $6c - 4d - 4(c - 3d)$

- A.  $2c - 14d$       B.  $10c + 10d$       C.  $10c - 14d$       D.  $2c + 8d$
- 

21. Evaluate  $(x + y) - 3z$  if  $x = 7$ ,  $y = 8$ ,  $z = 0$ .

- A.  $12$       B.  $0$       C.  $15$       D.  $5$       E.  $10$
- 

22. Evaluate  $\frac{3a-b}{3(a-b)}$  if  $a = 5$  and  $b = 3$ .

- A.  $1$       B.  $2$       C.  $3$       D.  $4$       E.  $6$
- 

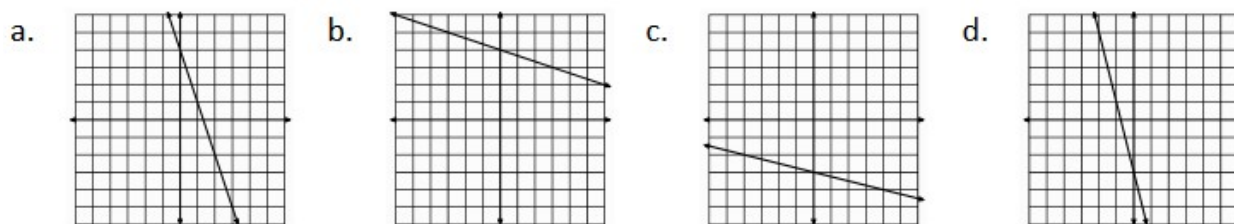
23. Which coordinate is a solution to the equation  $4x + 3y = 18$ ?

- A.  $(3, -2)$       B.  $(3, 2)$       C.  $(-3, -10)$       D. B and C      E. A and B
- 

24. What is the slope for the line  $y = -18x - 7$ ?

- A.  $1$       B.  $18$       C.  $-18$       D.  $7$       E.  $-7$
-

25. Which graph matches the equation  $x + 3y = 12$ ?



Choose the letter of the equal to, less than, or greater than symbol that makes a true statement.

26.  $0.03 \underline{\hspace{1cm}} 0.031$

A. =

B. <

C. >

27.  $1.452 \underline{\hspace{1cm}} 1.425$

A. =

B. <

C. >

28.  $0.008 \underline{\hspace{1cm}} 0.06$

A. =

B. <

C. >

29.  $-0.008 \underline{\hspace{1cm}} -0.06$

A. =

B. <

C. >

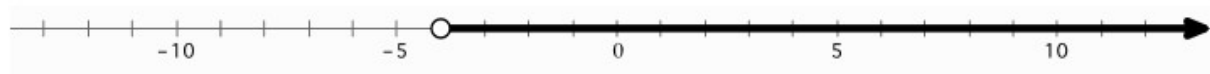
30.  $-7.444 \underline{\hspace{1cm}} -7.44$

A. =

B. <

C. >

31. Which inequality is best represented by the following number line?



A.  $-2x < 8$

B.  $-2x > 8$

C.  $-2x \leq 8$

D.  $-2x \geq 8$

Solving equations using inverse operations

32. Solve:  $y - 17 = 19$

A. -36

B. 2

C. 26

D. 36

E. -2

33. Solve:  $\frac{1}{9}x = 5$

A.  $\frac{5}{9}$

B.  $5\frac{1}{9}$

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

D. 45

E.  $\frac{1}{45}$

---

 34. Solve:  $2x - 3 = -3$

- A. 0                      B. 3                      C. -3                      D. 7                      E. No solution.

---

 35. Solve:  $b - 3b = 24$

- A. -8                      B. -12                      C. 12                      D. -6                      E. No solution.

---

 36. Solve:  $2m = 1 - m$

- A.  $\frac{1}{3}$                       B. 2                      C. 1                      D. 3                      E. No solution.

---

 37. Consider the equation  $-4 - (-2)$ . Which of the equations below is NOT the same equation?

- A.  $-4 + 2$               B.  $-2 + (-4)$               C.  $2 + (-4)$               D.  $2 - 4$
- 

**WRITE YOUR ANSWERS HERE**

1)		2)		3)		4)	
5)		6)		7)		8)	
9)		10)		11)		12)	
13)		14)		15)		16)	
17)		18)		19)		20)	
21)		22)		23)		24)	
25)		26)		27)		28)	
29)		30)		31)		32)	
33)		34)		35)		36)	
37)							

ANSWER KEY

Answers to Exercises for Monday, May 18, 2020

*Chapter Test, Page 101, #1-22, 26-27, 32-33*

**Page 101 • CHAPTER TEST**

1.  $7 < 8$
2.  $4 > -5$
3.  $0 > -6$
4.  $-2 > -3$
5.  $|-3| = 3$
6.  $|7| = 7$
7.  $|-12| = 12$
8.  $|0| = 0$
9.  $-556, -56, -6.5, -0.6, 6.05$
10.  $-333, -23, -3.2, 0.32, 3.02$
11.  $-8.4 + 36.8 = 28.4$
12.  $-6.3 + -0.12 = -6.42$
13.  $13.2 + -13.2 = 0$
14.  $14.6 + 23.1 = 37.7$
15.  $0 + -11.5 = -11.5$
16.  $0.89 + -16.1 + -0.94 = (0.89 + -16.1) + -0.94 = -15.21 + -0.94 = -16.15$
17.  $26.5 - 8.3 = 18.2$
18.  $-4.3 - 20.6 = -4.3 + (-20.6) = -24.9$
19.  $0 - 13.6 = 0 + (-13.6) = -13.6$
20.  $-14.2 - (-9.5) = -14.2 + 9.5 = -4.7$
21.  $41 - (-11.67) = 41 + 11.67 = 52.67$
22.  $-6.4 - (-6.4) = -6.4 + 6.4 = 0$
26.  $12(-6.37) = -76.44$
27.  $-30(0.45) = -13.5$
32.  $69.3 \div (-3) = -23.1$
33.  $-18 \div (-2.5) = 7.2$

Answers to Exercises for Tuesday, May 19, 2020

*Chapter Test, Page 177, #1-10, 13, 16-19, 24 Pg 509, 74, 75, 76*

**Page 177 • CHAPTER TEST**

1.  $-8 + x = 9$  and  $9 = -8 + 17$ , so  $-8 + x = -8 + 17$  and  $x = 17$ .
2.  $8 + y = 14$  and  $14 = 8 + 6$ , so  $8 + y = 8 + 6$  and  $y = 6$ .
3.  $5m = 35$  and  $35 = 5(7)$ , so  $5m = 5(7)$  and  $m = 7$ .
4.  $-28 = 4d$  and  $-28 = 4(-7)$ , so  $4d = 4(-7)$  and  $-7 = d$ .
5.  $-2a - 3 + 4 + 6a = 27$ ,  $4a + 1 = 27$
6.  $3(x + 7) = -41 - 8$ ,  $3x + 3(7) = -49$ ,  $3x + 21 = -49$
7.  $m - 21 = -16$ ,  $m - 21 + 21 = -16 + 21$ ,  $m = 5$ ; 5
8.  $32 = a + 9$ ,  $32 - 9 = a + 9 - 9$ ,  $23 = a$ ; 23
9.  $-11 + r = 25$ ,  $-11 + r + 11 = 25 + 11$ ,  $r = 36$ ; 36
10.  $7p = 49$ ,  $\frac{7p}{7} = \frac{49}{7}$ ,  $p = 7$ ; 7

13.  $-3b + 4 = -19$ ,  $-3b + 4 - 4 = -19 - 4$ ,  $-3b = -23$ ,  $\frac{-3b}{-3} = \frac{-23}{-3}$ ,  $b = \frac{23}{3}$ ;  
 $\frac{23}{3}$ , or  $7\frac{2}{3}$

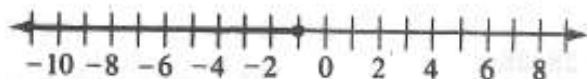
16.  $3(5t - 6) = 72$ ,  $15t - 18 = 72$ ,  $15t - 18 + 18 = 72 + 18$ ,  $15t = 90$ ,  $\frac{15t}{15} = \frac{90}{15}$ ,  $t = 6$ ; 6

17.  $a + 12 < 19$ ,  $a + 12 - 12 < 19 - 12$ ,  $a < 7$  The solutions are all the numbers less than 7.

18.  $\frac{m}{4} > -8$ ,  $4\left(\frac{m}{4}\right) > 4(-8)$ ,  $m > -32$  The solutions are all the numbers greater than  $-32$ .

19.  $-3y \leq 42$ ,  $\frac{-3y}{-3} \geq \frac{42}{-3}$ ,  $y \geq -14$  The solutions are all the numbers greater than or equal to  $-14$ .

24.  $-35 \leq -5(r + 8)$ ,  $-35 \leq -5r - 40$ ,  $-35 + 40 \leq -5r - 40 + 40$ ,  $5 \leq -5r$ ,  $\frac{5}{-5} \geq \frac{-5r}{-5}$ ,  
 $-1 \geq r$ ,  $r \leq -1$  The solutions are all the numbers less than or equal to  $-1$ .



74.  $-4\frac{2}{7} \times 2\frac{1}{4} = -\frac{30}{7} \times \frac{9}{4} = -\frac{135}{14} = -9\frac{9}{14}$

75.  $\frac{4}{9} \div \frac{2}{9} = \frac{4}{9} \times \frac{9}{2} = \frac{2}{1} = 2$

76.  $-\frac{3}{8} \div \left(-\frac{5}{16}\right) = -\frac{3}{8} \times \left(-\frac{16}{5}\right) = \frac{6}{5} = 1\frac{1}{5}$

### Answers to Exercises for Wednesday, May 20, 2020

#### *Chapter Test, Page 301, #1-8, 12-13, 15-16*

#### **Page 301 • CHAPTER TEST**

1.  $(5, -2)$

2.  $(-5, 3)$

3.  $(-3, -5)$

4.  $(3, 4)$

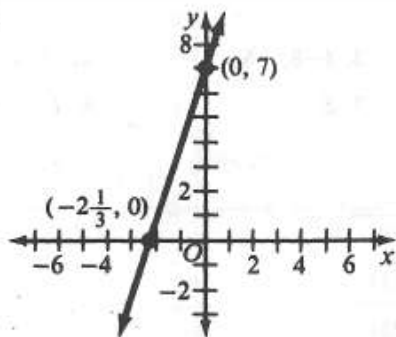
5.  $T$

6.  $N$

7.  $S$

8.  $I$

12.



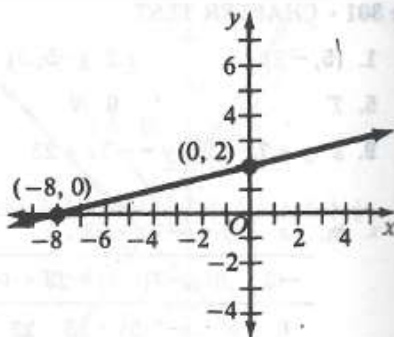
$$y - 3x = 7$$

$$\text{If } x = 0: y - 3(0) = 7, y = 7$$

$$\text{If } y = 0: 0 - 3x = 7, -3x = 7, x = -2\frac{1}{3}$$

x	y
0	7
$-2\frac{1}{3}$	0

13.



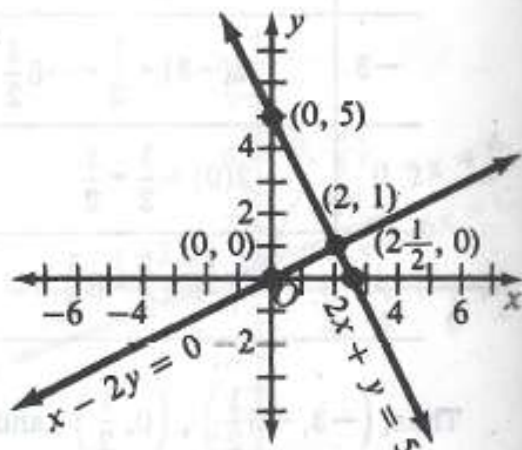
$$4y - x = 8$$

$$\text{If } x = 0: 4y - 0 = 8, y = 2$$

$$\text{If } y = 0: 4(0) - x = 8, -x = 8, x = -8$$

x	y
0	2
-8	0

15.



$$x - 2y = 0$$

x	y
0	0
2	1

$$2x + y = 5$$

x	y
0	5
$2\frac{1}{2}$	0

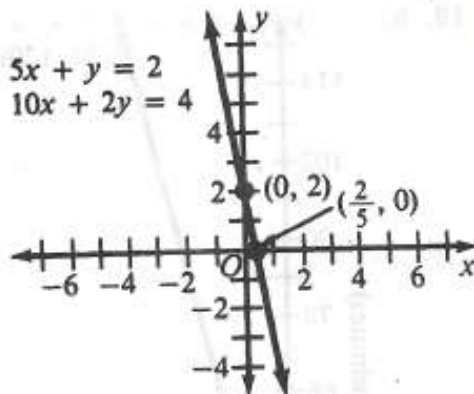
The lines intersect.

The solution is (2, 1).

$$\text{Check: } 2 - 2(1) = 2 - 2 = 0;$$

$$2(2) + 1 = 4 + 1 = 5$$

17.



$$5x + y = 2$$

x	y
0	2
$\frac{2}{5}$	0

$$10x + 2y = 4$$

x	y
0	2
$\frac{2}{5}$	0

The lines coincide. There are infinitely many solutions.



Answers to Exercises for Thursday, May 21, 2020

*Chapter Test, Page 267, #1-7, 10-13, 18-19, 23*

**Page 267 • CHAPTER TEST**

1.  $\frac{46}{60} = \frac{23}{30}$

2.  $\frac{16 \text{ mm}}{3 \text{ cm}} = \frac{16 \text{ mm}}{30 \text{ mm}} = \frac{8}{15}$

3.  $\frac{18}{15} = \frac{6}{5}$

4.  $27n = 63(42), n = \frac{2646}{27} = 98; 98$

5.  $1.2r = 4.8(3), r = \frac{14.4}{1.2} = 12; 12$

6.  $21t = 7(9), t = \frac{63}{21} = 3; 3$

7.  $442 = r(5.5), r = \frac{442}{5.5} = \frac{4420}{55} = 80\frac{4}{11}$ , or  $80.\overline{36}$ ; the average speed is  $80.\overline{36}$ , or  $80\frac{4}{11}$  km/h.

10.  $0.93 = 93\%$

11.  $0.0724 = 7.24\%$

12.  $\frac{25}{1000} = 0.025 = 2.5\%$

13.  $\frac{5}{8} = 0.625 = 62.5\%$

18. The total cost is  $100\% + 6\%$ , or  $106\%$  of the selling price.  $169.55 = 1.06b, b = \frac{169.55}{1.06} \approx 159.95$ ; the selling price is \$159.95.

19. The increase is  $\$3175 - \$2500$ , or  $\$675$ .  $675 = r(2500), r = \frac{675}{2500} = 0.27 = 27\%$ ; the increase is  $27\%$ .

23.  $\frac{9}{b} = \frac{36}{100}, 36b = 9(100), b = \frac{900}{36} = 25$ ; 25 students were in the class.