

1. Which set of numbers is ordered from least to greatest?

- A.  $\sqrt{12}, 4, 3, 3\frac{1}{2}, 3\bar{5}$       B.  $3, \sqrt{12}, 3\frac{1}{2}, 3\bar{5}, 4$   
3, 4, 6, 3, 5
- C.  $3, 3\bar{5}, \sqrt{12}, 3\frac{1}{2}, 4$       D.  $3, 4, 3\frac{1}{2}, 3\bar{5}, \sqrt{12}$

2. To which of the following sets of numbers does  $\sqrt[7]{49}$  **not** belong?

- A. Rational Numbers  
 B. Irrational Numbers  
 C. Real Numbers  
 D. Integers

$$\sqrt{25} \rightarrow 5$$

3. Between which two integers does  $\sqrt{28}$  lie on the number line?

- A. Between 4 and 5  
 B. Between 5 and 6  
 C. Between 6 and 7  
 D. Between 7 and 8

$$\sqrt{36} \rightarrow 6$$

4. The area of a square living room is 196 ft<sup>2</sup>. What is the perimeter of the room?

- A. 14 ft  
 B. 49ft  
 C. 56 ft  
 D. 68ft

$$\sqrt{196} = 14$$

$$P = 4(14)$$

$$P = 56$$

5. Solve  $x^3 = 125$

- A.  $x = 5$   
 B.  $x = 25$   
 C.  $x = 42$   
 D.  $x = 63$

$$5^3 = 5 \cdot 5 \cdot 5$$

6. Which number is a perfect square?

- A. 18  
 B. 40  
 C. 100  
 D. 200  
 E.

$$10 \cdot 10 = 100$$

7. Which number is a perfect cube?

- A. 16
- B. 25
- C. 125
- D. 400

$$5^3 = 5 \cdot 5 \cdot 5$$

8. Given the following list of numbers:

$$\sqrt{25}, \sqrt{8}, \sqrt{\frac{9}{49}}, \sqrt[3]{27}$$

$$5, 2.8, \frac{3}{7}, 3$$

Rational - can be written as a fraction

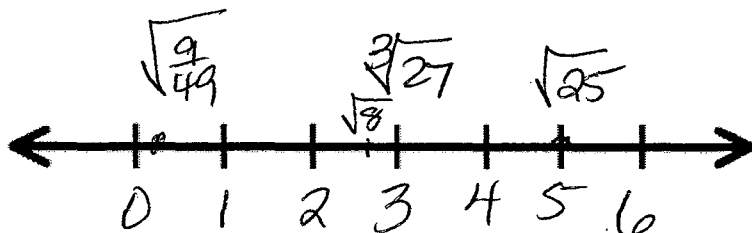
Classify the following numbers as rational or irrational. Give a reason.

Number	Rational or Irrational	Reason
$\sqrt{25}$	Rational	Perfect Square 5
$\sqrt{8}$	Irrational	Sq. Rt. None Perfect Sq.
$\sqrt{\frac{9}{49}}$ $\frac{3}{7}$	Rational	Fraction $\frac{3}{7}$
$\sqrt[3]{27}$	Rational	Cube Root is 3 $\frac{3}{1}$

Order the numbers from least to greatest

$$\sqrt{\frac{9}{49}}, \sqrt{8}, \sqrt[3]{27}, \sqrt{25}$$

Graph the numbers on a number line.



1. What is the solution to the equation below?

$$-8 - n = -3(2n - 4)$$

- A. 4      B. -4      C.  $\frac{-4}{7}$       D.  $\frac{4}{7}$

$$\begin{array}{r} -8 - n = -6n + 12 \\ +8 \qquad \qquad +8 \\ \hline -n = -6n + 20 \\ +6n \quad +6n \\ \hline 5n = 20 \quad \boxed{n=4} \end{array}$$

2. Which equation is equivalent to the equation below?

$$4(n - 2) + 3 = 3(n - 4)$$

- A.  $4n + 1 = 3n - 4$   
 B.  $4n - 5 = 3n - 4$   
 C.  $4n - 5 = 3n - 12$   
 D.  $4n + 1 = 3n - 12$

$$\begin{array}{l} 4n + 8 + 3 = 3n - 12 \\ 4n + 5 = 3n - 12 \end{array}$$

3. What is the value of b in the equation  $\frac{1}{3}b + 5 = 3b - 3$ ?

- A. 3      B.  $3\frac{1}{3}$       C. 2      D. 2.3

$$\begin{array}{r} 5 = 2\frac{2}{3}b - 3 \\ +3 \qquad \qquad +3 \\ \hline 8 = \frac{8}{3}b \\ \frac{8}{8} \quad \frac{8}{3} \\ \hline 3 = b \end{array}$$

4. What is the solution to the equation below?

$$5 - x = 2(x + 7)$$

- A. 3      B. -3      C. -9      D. 9

$$\begin{array}{r} 5 - x = 2x + 14 \\ +x \quad +x \\ \hline 5 = 3x + 14 \\ -14 \quad -14 \\ \hline 9 = 3x \quad \boxed{x=3} \end{array}$$

5. Which equation is equivalent to the equation below?

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

- A.  $4x + 2 = 3x - 10$   
 B.  $4x - 7 = 3x - 10$   
 C.  $4x - 7 = 3x - 30$   
 D.  $4x + 2 = 3x - 30$

$$\begin{array}{l} 4x - 12 + 5 = 3x - 30 \\ 4x - 7 = 3x - 30 \end{array}$$

6. What is the value of n in the equation  $\frac{3}{4}n + 5 = 2n - 10$ ?

- A.  $\frac{3}{4}$       B.  $\frac{1}{2}$       C. 1.2      D. 12

$$\begin{array}{r} \frac{3}{4}n + 5 = 2n - 10 \\ -\frac{3}{4}n \quad -\frac{3}{4}n \\ \hline 5 = \frac{5}{4}n - 10 \\ +10 \quad +10 \\ \hline 15 = \frac{5}{4}n \\ \frac{15}{5} \quad \frac{5}{4} \\ \hline 12 = n \end{array}$$

7. Solve and check:

$$\begin{aligned}\frac{3}{5}(x+4) &= 6x - 78\frac{3}{5} \\ \frac{3}{5}x + \frac{12}{5} &= 6x - 78\frac{3}{5} \\ -\frac{12}{5} & \quad -\frac{12}{5} \\ \hline \frac{3}{5}x &= 6x - 81 \\ -6x & \quad -6x \\ \hline -5\frac{2}{5}x &= -81 \\ -\frac{5\frac{2}{5}}{5} & \quad -\frac{5\frac{2}{5}}{5} \\ \hline \boxed{x=15}\end{aligned}$$

ck:

$$\begin{aligned}\frac{3}{5}(x+4) &= 6x - 78\frac{3}{5} \\ \frac{3}{5}(15+4) &= 6(15) - 78\frac{3}{5} \\ \frac{3}{5}(19) &= 90 - 78\frac{3}{5} \\ 11\frac{2}{5} &= 11\frac{2}{5} \checkmark\end{aligned}$$

8. Solve and check:

$$\begin{aligned}5x - 49\frac{3}{8} &= \frac{3}{8}(x+4) \\ 5x - 49\frac{3}{8} &= \frac{3}{8}x + 1\frac{4}{8} \\ +49\frac{3}{8} & \quad +49\frac{3}{8} \\ \hline 5x &= \frac{3}{8}x + 50\frac{7}{8} \\ -\frac{3}{8}x & \quad -\frac{3}{8}x \\ \hline 4\frac{5}{8}x &= 50\frac{7}{8} \\ \frac{4\frac{5}{8}}{4\frac{5}{8}} & \quad \frac{4\frac{5}{8}}{4\frac{5}{8}} \\ \hline \boxed{x=11}\end{aligned}$$

ck:

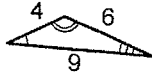
$$\begin{aligned}5x - 49\frac{3}{8} &= \frac{3}{8}(x+4) \\ 5(11) - 49\frac{3}{8} &= \frac{3}{8}(11+4) \\ 55 - 49\frac{3}{8} &= \frac{3}{8}(15) \\ 5\frac{5}{8} &= 5\frac{5}{8} \checkmark\end{aligned}$$

1. Which of the following is not true if  $\triangle ABCD \cong \triangle XYZ$ ?

- A.  $\angle B \cong \angle X$
- B.  $\angle Z \cong \angle D$
- C.  $\overline{BD} \cong \overline{ZY}$**
- D.  $\overline{CB} \cong \overline{XY}$

$\triangle XYZ$

2. The triangles shown are similar. Find the value of x and y.



- A. x = 8; y = 18**
- B. x = 4; y = 9
- C. x = 2; y = 4.5
- D. x = 14; y = 17

$$\frac{4}{6} = \frac{x}{12}$$

$$6x = 48$$

$$x = 8$$

$$\frac{6}{9} = \frac{12}{y}$$

$$6y = 108$$

$$y = 18$$

3. Ms. Duffy want to enlarge a photo of her period 2 class to make a poster. The photo has a width of 4in. and a length of 6in. The poster has a length of 42inches. What is the width of the poster?

- A. 10.5in.
- B. 42 in
- C. 28 in.**

$$\frac{w}{6} = \frac{4}{42}$$

$$6w = 168$$

$$w = 28$$

4. Which of the following statements is *not* true if  $\triangle JKL$  is congruent to  $\triangle RST$ ?

- A.  $\triangle J \cong \triangle R$
- B.  $\triangle K \cong \triangle T$**
- C.  $\overline{JK} \cong \overline{RS}$
- D.  $\overline{KL} \cong \overline{ST}$



5. The length and width of a rectangle are 5 feet and 2 feet, respectively. A similar rectangle has a width of 8 feet. What is the length of the second rectangle?

- A. 14 ft
- B. 16ft
- C. 8 ft.
- D. 20ft**

$$\frac{l}{w} = \frac{5}{2} = \frac{x}{8}$$

$$2x = 40$$

$$x = 20 \text{ ft}$$

6. Mitzi is 64 inches tall and casts a 48 inch shadow. Her daughter, who is standing next to her, casts a 30 inch shadow. How tall is her daughter?

- A. 47.5 in
- B. 40 in.**
- C. 35 in.
- D. 22.5 in

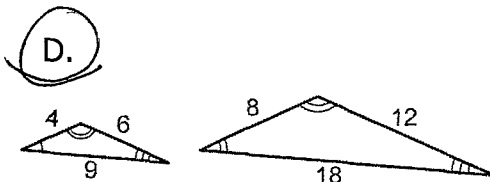
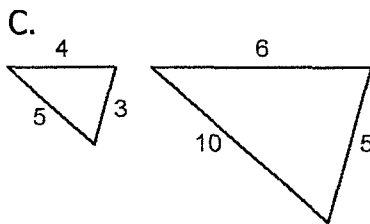
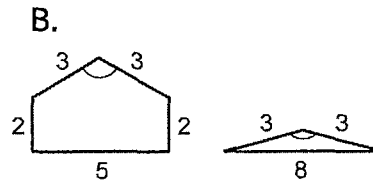
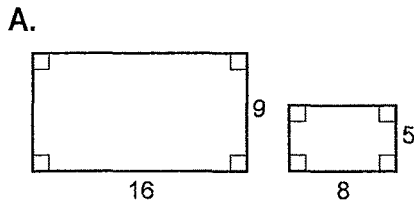
$$\begin{array}{r} \text{ht} \quad \cancel{64} - X \\ \text{Sh.} \quad 48 \quad 30 \\ \hline 48x = 1920 \\ \hline 48 \quad 48 \\ \hline X = 40 \end{array}$$

7. Which of the following statements is *not* true if quadrilateral  $ABCD$  is congruent to quadrilateral  $RSTU$ ?

- A.  $\overline{AB} \cong \overline{RS}$
- B.  $\overline{CD} \cong \overline{TU}$
- C.  $\angle T \cong \angle C$
- D.  $\angle A \cong \angle U$**

$ABCD$   
 $RSTU$

8. Which pair of polygons is similar?



9. Explain the difference between congruent and similar figures.

- Congruent triangles are the same - same side and angle measures.
- Similar figures have same angle measures and proportional side measure

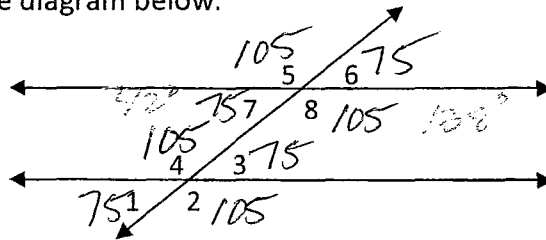
Name Key

Date \_\_\_\_\_

Final Review Angles

Period \_\_\_\_\_

Part I For questions 1 -5, use the diagram below.



1. What is the measure of  $\angle 5$  if measure of  $\angle 4$  is  $105^\circ$ ?

- a)  $75^\circ$
- b)  $105^\circ$
- c)  $210^\circ$
- d)  $15^\circ$

*Corresponding angles*

2. What kind of angles are angles 1 and 2.

- a) Vertical
- b) Alternate Exterior
- c) Corresponding
- d) Supplementary

3. What kind of angles are angles 3 and 7.

- a) Vertical
- b) Alternate Interior
- c) Complimentary
- d) Adjacent

4. What is  $m\angle 7$ , if  $m\angle 8$  is  $138^\circ$ ?

- a)  $42^\circ$
- ~~b)  $138^\circ$~~
- c)  $52^\circ$
- d)  $180^\circ$

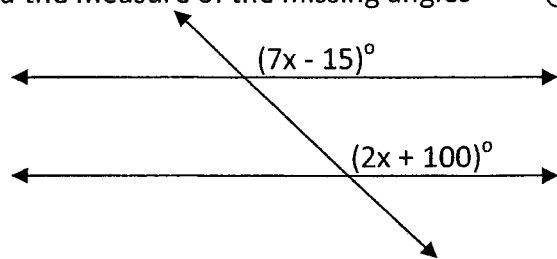
*supplementary*

5. A pair of vertical angles are

- a)  $\angle 1$  and  $\angle 7$
- b)  $\angle 2$  and  $\angle 5$
- c)  $\angle 2$  and  $\angle 4$
- d)  $\angle 7$  and  $\angle 8$

Part II Find the measure of the missing angles

6.



corresponding angles

$$7x - 15 = 2x + 100$$

$$\begin{array}{r} -2x \quad -2x \\ \hline 5x - 15 = 100 \\ +15 \quad +15 \end{array}$$

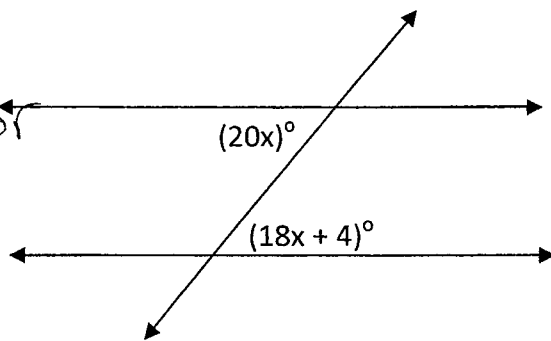
$$5x = 115$$

$$\frac{5x}{5} = \frac{115}{5}$$

$$x = 23$$

$7x - 15$	$2x + 100$
$7(23) - 15$	$2(23) + 100$
$146^\circ$	$46 + 100$
	$146^\circ$

alternate interior angles

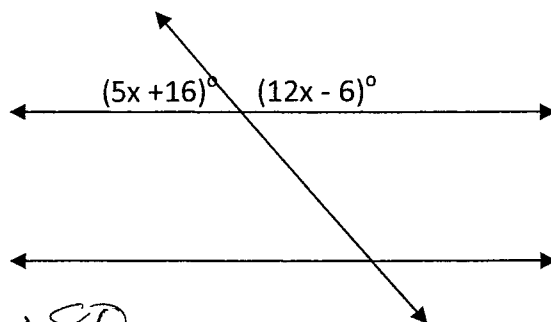


$$20x = 18x + 4$$

$$\begin{array}{r} -18x \quad -18x \\ \hline 2x = 4 \\ \frac{2x}{2} = \frac{4}{2} \\ x = 2 \end{array}$$

$20x$	$18x + 4$
$20(2)$	$18(2) + 4$
$40^\circ$	$36 + 4$
	$40^\circ$

8.



supplementary angles

$$5x + 16 + 12x - 6 = 180$$

$$17x + 10 = 180$$

$$\begin{array}{r} -10 \quad -10 \\ \hline 17x = 170 \\ \frac{17x}{17} = \frac{170}{17} \\ x = 10 \end{array}$$

$5x + 16$	$12x - 6$
$5(10) + 16$	$12(10) - 6$
$50 + 16$	$120 - 6$
$66^\circ$	$114^\circ$



Final Review: Exponents

Name Key

1. What is the simplified form of  $(2x^3y^4)(5xy^2)$ ?
- A.  $7x^3y^6$   
 B.  $7x^4y^6$   
 C.  $10x^3y^6$   
 D.  $10x^4y^6$
- mult coefficients  
Add exponents*

2. What is the simplest form of  $\frac{4x^3y^2}{20xy}$ ?
- A.  $x^2y$   
 B.  $5x^2y$   
 C.  $\frac{x^2y}{5}$   
 D.  $\frac{xy}{5}$
- Divide coefficients  
Subtract exponents*
- $$\frac{1x^2y}{5}$$

3. What is the value of  $4^0 + 4^{-3}$ ?
- A. 0  
 B.  $\frac{1}{64}$   
 C.  $1\frac{1}{64}$   
 D. 12
- zero power = 1  
neg exponent =  $\frac{1}{\text{base}^{\text{positive exponent}}}$*
- $$4^0 = 1$$
- $$4^{-3} = \frac{1}{4^3} = \frac{1}{64}$$

4. Which of the following is equivalent to the expression  $(2xy^2)^3$ ?
- A.  $2xy^6$   
 B.  $8x^3y^6$   
 C.  $8x^3y^5$   
 D.  $6x^3y^6$
- raise inside to outside  
power through  
mult. ex  
cept coefficient*
- $$(2xy^2)^3$$
- $$2^3 = 2 \cdot 2 \cdot 2$$
- $$8x^3y^6$$

5. Which of the following is equivalent to  $\frac{x^0}{x^3}$ ?
- A. 1  
 B. 0  
 C. x  
 D.  $x^6$
- divide  
subtract exponents*
- $$x^0 = 1$$

6. What is the simplified form of  $(4x^3y^4)(3x^5y^2)$  ?

$$12x^8y^6$$

A.  $7x^8y^6$

B.  $7x^{15}y^8$

C.  $12x^8y^6$

D.  $12x^{15}y^8$

7. What is the simplest form of  $\frac{20x^5y^2}{2xy}$  ?

$$10x^4y$$

A.  $x^4y$

B.  $10x^4y$

C.  $18x^4y$

D.  $18x^5y^2$

8. What is the value of  $ab^0$  ?

$$ab^0 \\ a(1)$$

A. a

B. b

C. ab

D. 1

9. Which of the following is equivalent to the expression  $(3x^2y^3)^2$  ?

E.  $3x^2y^6$

F.  $6x^2y^6$

G.  $9x^4y^5$

H.  $9x^4y^6$

$$3^2x^4y^6 \\ 9x^4y^6$$

10. Which of the following is equivalent to  $3^{-4}$  ?

E. 81

F. -12

G.  $\frac{1}{-81}$

H.  $\frac{1}{81}$

$$\frac{1}{3^4} = \frac{1}{81}$$

Name Key

Date \_\_\_\_\_

Final Review Triangles

Period \_\_\_\_\_

1. In triangle MNP, the measure of  $\angle M$  is  $47^\circ$  and the measure of  $\angle N$  is  $90^\circ$ . What is the measure of  $\angle P$ ?

$$\begin{array}{r} 90 \\ 47 \\ \hline 137 \end{array} \quad \begin{array}{r} 180 \\ -137 \\ \hline 43 \end{array} \quad \angle P = 43^\circ$$

2. Which set of angle measures could form a triangle?

a)  $34^\circ, 23^\circ, 117^\circ = 174$

b)  $35^\circ, 20^\circ, 120^\circ = 175$

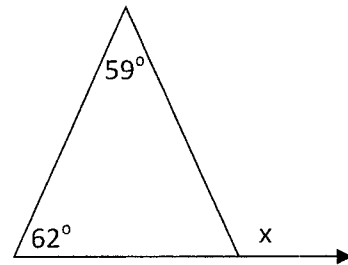
c)  $33^\circ, 30^\circ, 110^\circ = 173$

d)  $30^\circ, 60^\circ, 80^\circ = 170$

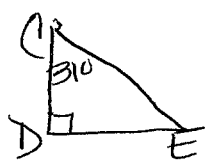
None

3. What is the value of  $x$  in the following diagram?

$$\begin{array}{l} 62 + 59 = x \\ 121^\circ = x \end{array}$$



4. In right triangle CDE,  $\angle D$  is the right angle. Find the measure of  $\angle E$  if  $\angle C$  measures  $31^\circ$ .



$$\begin{array}{r} 90 \\ 31 \\ \hline 121 \end{array} \quad \begin{array}{r} 180 \\ -121 \\ \hline 59 \end{array} \quad \angle E = 59^\circ$$

5. Which set of angle measures could form a triangle?

e)  $100^\circ, 24^\circ, 56^\circ = 180$

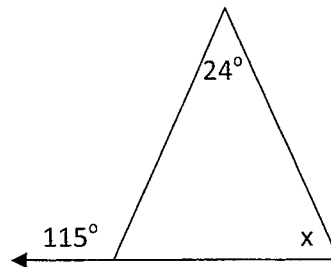
f)  $30^\circ, 20^\circ, 40^\circ$

g)  $85^\circ, 22^\circ, 63^\circ$

h)  $60^\circ, 60^\circ, 30^\circ$

6. What is the value of  $x$  in the following diagram?

$$\begin{array}{r} x + 24 = 115 \\ -24 \quad -24 \\ \hline x = 91^\circ \end{array}$$



7. In triangle ABC, the measure of  $\angle A$  is  $128^\circ$  and the measure of  $\angle B$  is  $13^\circ$ . What is the measure of  $\angle C$ ?

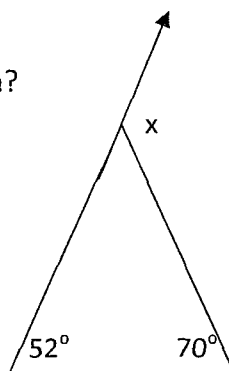
$$\begin{array}{r} 128 \\ 13 \\ \hline 141 \end{array} \quad \begin{array}{r} 180 \\ -141 \\ \hline 39 \end{array} \quad \angle C = 39^\circ$$

8. Which set of angle measures could form a right triangle?

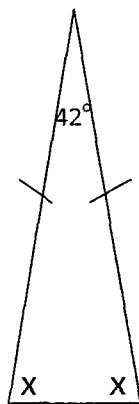
- a)  $12^\circ, 80^\circ, 90^\circ = 182^\circ$
- b)  $15^\circ, 44^\circ, 90^\circ = 149^\circ$
- c)  $9^\circ, 51^\circ, 90^\circ = 150^\circ$
- d)  $11^\circ, 79^\circ, 90^\circ = 180^\circ$

9. What is the value of  $x$  in the following diagram?

$$\begin{aligned} 52 + 70 &= x \\ 122 &= x \end{aligned}$$



10. What is the measure of each base angle in the following isosceles triangle?



$$\begin{aligned} x + x + 42 &= 180 \\ 2x + 42 &= 180 \\ -42 \quad -42 & \\ \hline 2x &= 138 \\ \underline{\quad} & \\ 2 \quad 2 & \\ x &= 69^\circ \end{aligned}$$

Name Kelly

Date \_\_\_\_\_

Final Review: Graphing

Period \_\_\_\_\_

1. Which of the following points lies the line  $y = 7x + 6$

- a. (8, -2)  $-2 = 7(8) + 6$   
 $-2 = 56 + 6$   
 $-2 \neq 62$
- b. (2, -8)  $-8 = 7(2) + 6$   
 $-8 = 14 + 6$   
 $-8 \neq 20$
- c. (2, 8)  $8 = 7(2) + 6$   
 $8 = 14 + 6$   
 $8 \neq 20$
- d. (-2, -8)  $-8 = 7(-2) + 6$   
 $-8 = -14 + 6$   
 $-8 = -8 \checkmark$

2. What is the slope of the following line:  $y - 5x = 7 \rightarrow y = 5x + 7$

- a. 5
- b.  $\frac{1}{5}$
- c. -5
- d. 7

$y = mx + b$   
 $y = 5x + 7$

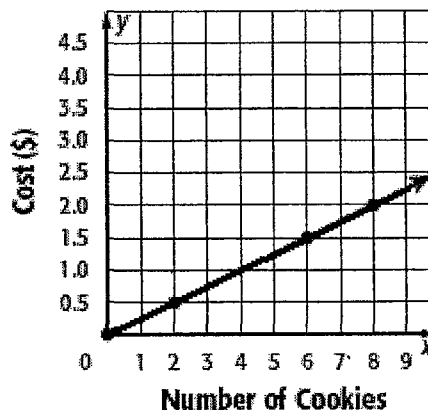
3. Which is the equation of a line that passes through the point (-8,1) and a slope of 2?

- a.  $y = \frac{1}{2}x - 8$
- b.  $y = 2x + 1$
- c.  $y = 2x - 15$
- d.  $y = 2x + 17$

$1 = 2(-8) + 17$   
 $1 = -16 + 17$   
 $1 = 1 \checkmark$

4. Which statement about this graph is true?

- a. The y intercept is 0.5.
- b. The rate of change is  $\frac{1}{2}$
- c. The y intercept is 0.
- d. The rate of change 4.



$\frac{\Delta y}{\Delta x} = \frac{.5}{2} = \frac{1}{4}$

5. Find the slope of the following points: (5,2) and (4,6)

- a.  $m = \frac{6-2}{4-5}$
- b.  $m = \frac{5-2}{4-6}$
- c.  $m = \frac{4-5}{6-2}$
- d.  $m = \frac{6-4}{2-5}$

$x_1, y_1$        $x_2, y_2$

$m = \frac{y_2 - y_1}{x_2 - x_1}$

6. What is the slope of the line that passes through the points A(-2, 4) and D(1, -1)?

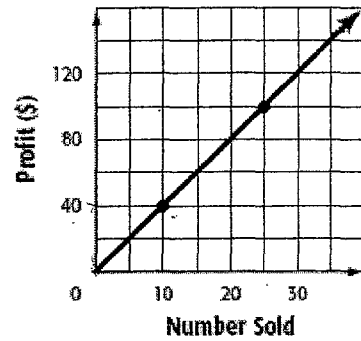
- a.  $-\frac{5}{3}$
- b.  $-\frac{3}{5}$
- c.  $\frac{3}{5}$
- d.  $\frac{5}{3}$

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1 - 4}{1 - (-2)} = \frac{-5}{3}$

$x_1, y_1$        $x_2, y_2$

7. The profits from selling T-shirts at store A are shown in the graph. The profit  $y$  for selling  $x$  T-shirts at store B is represented by the equation  $y = 3.75x$ . Which of the following statements is true?

$\frac{40}{10} = \$4$  per shirt for store A



- a. Store A made a greater profit per T-shirt.  
 b. Store B made a greater profit per T-shirt.  
 c. Store A made a profit of \$3.50 per T-shirt.  
 d. Store B made a profit of \$4 per T-shirt.

**Part II Short Answer**

8. What are the slope and  $y$ -intercept for the graph of  $y + 9x = -6$ ?

$y = mx + b$   
 $y = -9x - 6$   
 $m(\text{slope}) = -9$   
 $b(\text{y-int.}) = -6$

$$\begin{array}{r} -9x - 9x \\ \hline y = -9x - 6 \end{array}$$

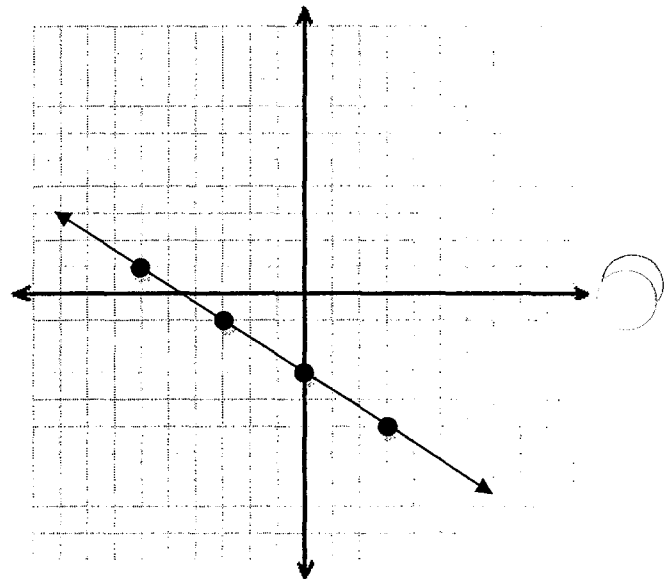
9. Write the equation of the following line:

$y = mx + b$

$b = -3$

$y = -\frac{2}{3}x - 3$

$m = -\frac{2}{3}$



10. Graph the following equation on the coordinate plane:  $y - 5x = 1$

$$\begin{array}{r} y - 5x = 1 \\ +5x + 5x \\ \hline y = 5x + 1 \end{array}$$

$m = 5$   $\frac{y}{x}$   $\uparrow$   
 $1$   $x$   $\rightarrow$

$b = 1$   $(0, 1)$

