

8th grade math final

Name Key  
Mrs. Roubos

Date \_\_\_\_\_  
8R Period \_\_\_\_\_

Homework Day 4

<p>1. What is the solution for the following system?</p> <p><math>(1, 1)</math></p> <p>The point where they intersect</p>	<p>2. What is the slope of line <math>l</math> shown in the accompanying diagram?</p> <p><math>m = \frac{\text{rise}}{\text{run}}</math></p> <p><math>m = \frac{2}{3}</math></p> <p>Uphill = positive</p>
<p>3. How many solutions does the following equation have?</p> $6x + 4 = 6x - 5$ <p><math>-6x \quad -6x</math></p> $4 \neq -5$ <p>must move the variables 1st</p> <p>NO/NONE/ZERO SOLUTIONS</p>	<p>4. Does <math>(2, 7)</math> lie on the graph of the equation <math>y = 5x - 3</math>?</p> $7 = 5(2) - 3$ $7 = 10 - 3$ $7 = 7$ <p>yes it is a solution</p>
<p>5. What is the equation for the line passing through the points <math>(3, 0)</math> and <math>(0, 5)</math>?</p> <p><math>y = mx + b</math></p> <p><math>m = -\frac{5}{3}</math></p> <p><math>b = 5</math></p> <p><math>y = -\frac{5}{3}x + 5</math></p> <p> <math>x_1, y_1 \quad x_2, y_2</math>  <math>m = \frac{y_2 - y_1}{x_2 - x_1}</math>  <math>m = \frac{5 - 0}{0 - 3}</math>  <math>m = \frac{5}{-3}</math>  <math>m = -\frac{5}{3}</math> </p> <p> <math>(3, 0) \quad m = -\frac{5}{3}</math>  <math>y = mx + b</math>  <math>0 = (-\frac{5}{3})(3) + b</math>  <math>0 = -5 + b</math>  <math>5 = b</math> </p>	<p>6. Solve the following system for <math>x</math> &amp; <math>y</math>.</p> $\begin{array}{r} 4x + 2y = 8 \\ + 5x + 2y = 10 \\ \hline 9x = 18 \\ \frac{9x}{9} = \frac{18}{9} \\ x = 2 \end{array}$ <p> <math>4x + 2y = 8</math>  <math>4(2) + 2y = 8</math>  <math>8 + 2y = 8</math>  <math>-8 \quad -8</math>  <math>\frac{2y}{2} = \frac{0}{2}</math>  <math>y = 0</math> </p> <p><math>(2, 0)</math></p>
<p>7. Solve for <math>x</math>:</p> <p>D</p> <p>C</p> <p>M</p> <p>J</p> $\begin{array}{r} 8.2x + 2.2 = 4.4x + 28.8 \\ -4.4x \quad -4.4x \\ \hline 3.8x + 2.2 = 28.8 \\ -2.2 \quad -2.2 \\ \hline 3.8x = 26.6 \\ \frac{3.8x}{3.8} = \frac{26.6}{3.8} \\ x = 7 \end{array}$	<p>8. If Nick walks at a speed of 45.5 miles in 7 hours, how many miles does Nick walk per hour?</p> <p><math>\frac{\text{mi}}{\text{hr}} \quad \frac{45.5}{7} = 6.5 \text{ mph}</math></p>

9. What is the solution to the equation below?

D

$$\frac{6}{7}(7x - 21) = 30$$

C

$$6x - 18 = 30$$

$$+18 \quad +18$$


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$$6x = 48$$

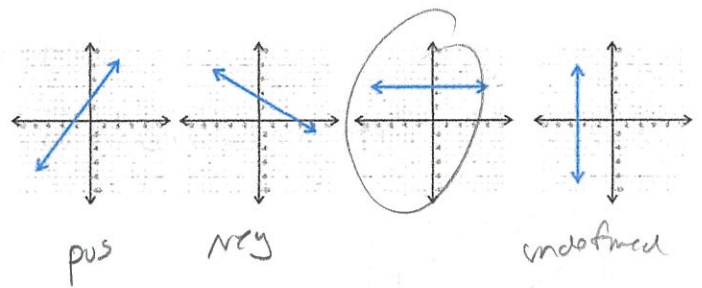
$$\frac{6x}{6} = \frac{48}{6}$$

$$x = 8$$

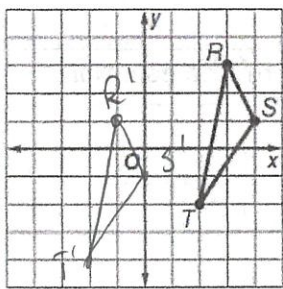
M

S

10. Which of the following graphs shows a line with a zero slope?



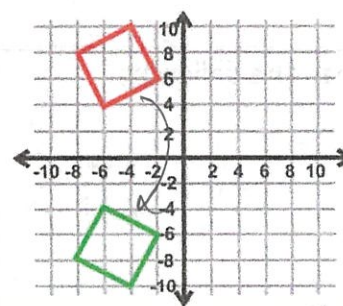
11. If you translate the figure four units left and two units down, what are the coordinates of R'?



$$R'(-1, 1)$$

slide the triangle  
 $4 \leftarrow + 2 \downarrow$   
 \* Don't forget the primes

12. The figures below are transformations of one another. How was the square in quadrant II transformed to make the square in quadrant III?



Reflection over the x-axis (horizontal axis)

\* same shape, same size, opposite direction

13. What are the coordinates of B', the image of B(0, 5) after a dilation with a scale factor of 5?

5's

multiply

$$B(0, 5) \rightarrow B'(0, 25)$$

14. What is the image of (8, 5) under a dilation of 4?

4's

multiply

$$(8, 5) \rightarrow (32, 20)$$

15. Under what type of transformation can the figures have different areas?

Dilation

\* Dilations are always different sizes

16. Point A has coordinates (2, 8). After a dilation, the coordinates of point A' are (12, 48). What is the scale factor for the dilation?

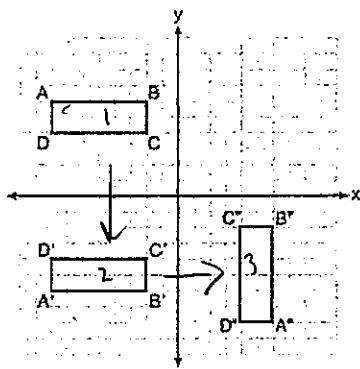
$$(2, 8) \xrightarrow{D} (12, 48)$$

$$\frac{12}{2} = 6$$

$$\frac{48}{8} = 6$$

Scale factor = 6

17. Which sequence of transformations is performed so that Figure ABCD is congruent to Figure A'B'C'D'?



1 → 2) Reflection over the x-axis  
2 → 3) Rotation

18. What is the image of Point A(-3, -8) when rotated 180° about the origin?

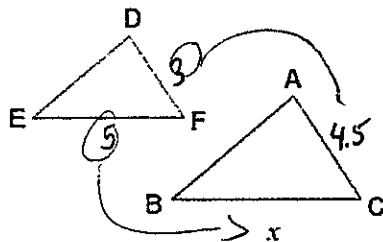
Same as reflection over the origin

$$A(-3, -8) \rightarrow A'(3, 8)$$

Rule:  $(-x, -y)$

exchange the sign of both coordinates

19. Find the missing side length,  $x$ , to the nearest tenth.



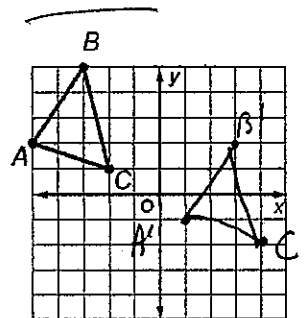
$$\frac{5}{x} = \frac{3}{4.5}$$

$$\frac{3x}{3} = \frac{22.5}{3}$$

$$x = 7.5$$

• set up a proportion using corresponding sides  
- cross-multiply  
+ solve

20. Triangle ABC is translated 6 units right and 3 units down. What are the coordinates of A'?



$$A'(1, -1)$$

• Slide the triangle 6 → and 3 ↓

• Don't forget the primes

