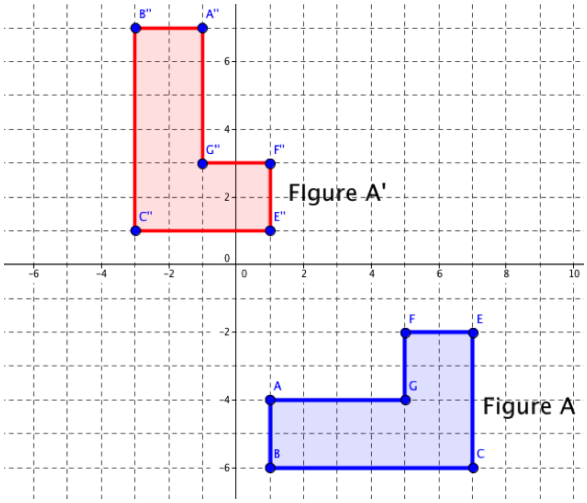
Practice Benchmark 3 Name_____

Math 8 Period___

1) A sequence of transformations was applied to an equilateral triangle in a coordinate plane. The transformations used were rotations, reflections, and dilations. Which statement about the resulting figure is true?
   a. It must be an equilateral triangle with the same side lengths as the original triangle.
   b. It must be an equilateral triangle, but the side lengths may differ from the original triangle.
   c. It may be a scalene triangle, and all the side lengths may differ from the original triangle.
   d. It may be an obtuse triangle with at least one side the same length as the original triangle.

2) Which sequence of transformations could take figure A to figure A'?



   a. Translate figure A -8 units to the left and 3 units up and then rotate the figure 90 degrees clockwise about the origin
   b. Translate figure A 8 units to the left and 3 units up and then rotate the figure 90 degrees counterclockwise about the origin
   c. Translate figure A -8 units to the left and 3 units up and then rotate the figure 90 degrees clockwise about the origin
   d. Translate figure A 8 units to the left and 3 units up and then rotate the figure 90 degrees clockwise about the origin.

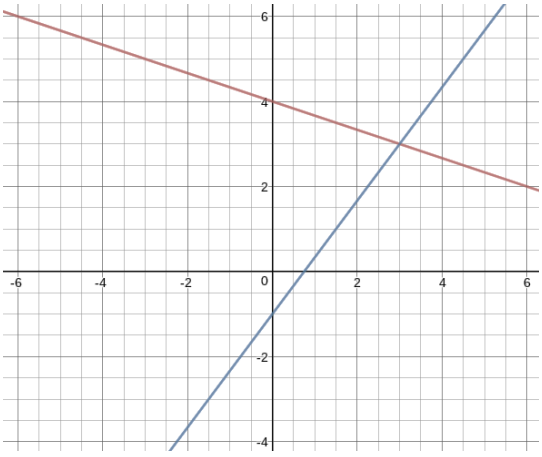
3) A certain human blood vessel has a diameter of 0.00006 meters. Which expressions represents this diameter, in meters, in scientific notation?
   a. 6×10^{-6}
   b. 6×10^{-5}
   c. -6×10^{5}
   d. 0.6×10^{-4}

4) A series of transformations on triangle A resulted in triangle B.
   *The side lengths of triangle A are congruent to those of triangle B.
   *Triangle A is flipped upside down to get triangle B with the points in the same respective order.

   Which transformation on triangle A must be included to result to triangle B?
   a. Dilation
   b. Rotation
   c. Reflection
   d. Translation

5) Which of the following has infinite solutions?
   a. $3x - 4y = 20$
      $6x + 8y = 20$
   b. $5x - y = 12$
      $15x - 3y = 32$
   c. $2x - 7y = 32$
      $3x + 7y = -16$
   d. $12x - 8y = 24$
      $9x - 6y = 18$

6) The graph of a system of linear equations is shown below.



   a. (2.5, 2.5)
   b. (3, 3)
   c. (-3, 3)
   d. (-2.5, 2.5)

7) What system of equations represents the graph in #6?
   a. $y = 3x - 2$, $y = -4x + 4$
   b. $y = 2x - 1$, $y = (-1/2)x + 4$
   c. $y = (4/3)x - 1$, $y = (-1/3)x + 4$
   d. $y = (4/3)x - 2$, $y = (-1/2)x + 4$

8) Simplify: $4^{-6} \times 4^{2}$

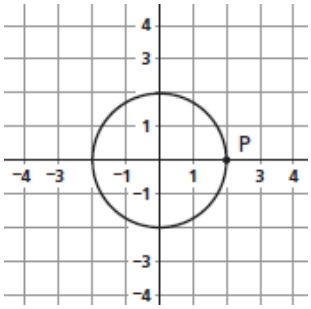
a. $\frac{1}{4^3}$ b. $\frac{1}{4^4}$ c. -4^{12} d. -4^3

9) Which equation does not represent a linear function of x?

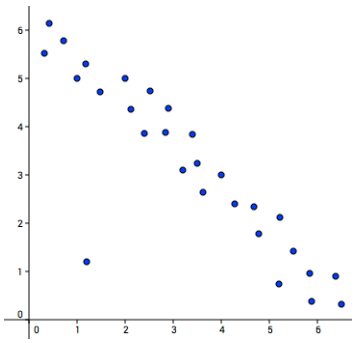
a. y = 3(4x – 12)
b. y= 12 – 3x
c. y = 2x(x + 2)
d. y = x/5

10) The circle shown below is centered at (0,0) and passes through point P located at (2,0). The circle is dilated with the center of dilation at the origin and a scale factor of 2 and then translated down 1 unit. What are the coordinates of the image of point P after this transformation?

a. (4,-1) b. (-4,1) c. (1,4) d. (-1,4)



11) Based on the data, which statement best describes the relationship?



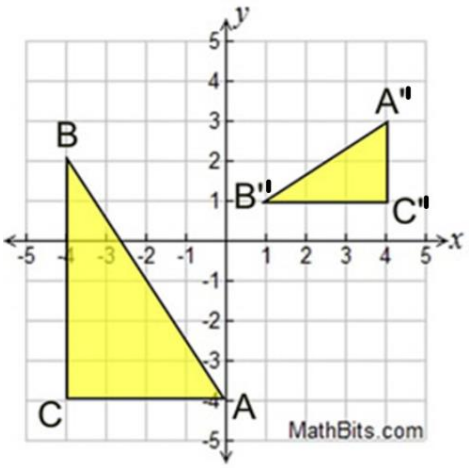
a. There is a negative linear association with no outliers
b. There is a negative linear association with one outlier
c. There is a positive linear association with no outliers
d. There is a positive linear association with one outlier

12) What kind of transformation does the data in the chart below best describe?

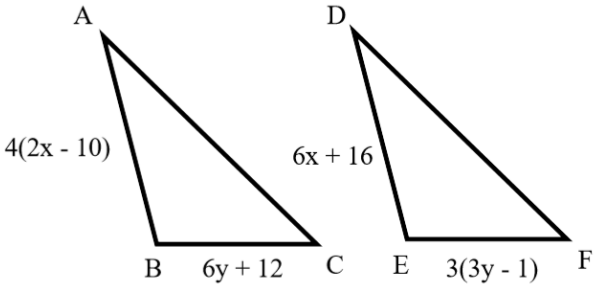
A (-3,5)	A'(3,-5)
B (2,4)	B'(-2,-4)
C (6,-7)	C'(-6,7)

a. Reflection over the y-axis
b. 180 degree rotation
c. Dilation
d. Translation

13) Triangle ABC underwent a sequence of transformations, resulting in Triangle A"B"C". Describe the sequence of transformations



14) Triangle ABC is translated to create triangle DEF, as shown. In these triangles, side AB is congruent to side DE and BC is congruent to side EF. Determine the values of x and y. Show your work.



15) Theme park A charges an entrance fee of $2 plus an additional $1 per ride. Theme Park B charges an entrance fee of $8 plus an additional $0.25 per ride.

Part A Write a system of linear equations that shows the cost in dollars, y, for a trip to the theme park while going on x rides each.

Part B How many rides will the cost be the same for both theme parks? Show your work.

Part C Which theme park will be less for a trip where you go on 10 rides each? Use words and numbers to explain how you determined your answer.

16) Determine how many solutions each of the following systems has. Show evidence to support your answer. If the system has one solution, find it.

$-4x + 7y = 6$
$12x - 21y = -18$

$28x - 21y = -140$
$5x - 7y = -64$

$2x - 5y = 20$
$10x - 25y = 125$