Eighth Grade

Name: Date:

1. a. $5^7 \times 5^{-10} =$
    A. 1/3   **B.** 5^{-2} **C.** 1/125   **D.** 5^{-17}

2. If $2x^3 = 54$, what is x?
    A. 1   **B.** 5   **C.** 2   **D.** 3

3. a. The answer for 20000000 × 3.5 × 1000000 in scientific notation is
(Hint: put 20000000 and 1000000 in scientific notation first)

    A. 7×10^{13} **B.** 3.5×10^{13} **C.** 2×10^{13} **D.** 7×10^{12}

b. 0.0004 × 4000 as a decimal is _____ and as a fraction is _____

4. Which set contains only rational numbers?
    A. { $\sqrt{49}$, $\sqrt{7}$, 1/2, 9/5}
    B. { $\sqrt{121}$, 12/5, $\sqrt{169}$, 0.333333333333}
    C. { $4 \times \sqrt{5}$, 2 , $\sqrt{100}$, 0}

5. To go to school, you have to walk 6 miles east and then 8 miles north ?
a. Draw a figure representing your path from home to school

b. Draw a line representing the shortest distance you could have taken. Then, calculate
this distance _____

6. The formula for the area of a circle is shown below

$A = pi \times r^2$

a. Which of the following is the correct expression for r or the radius in terms of A and
pi?
    A. $r = \sqrt{A / 2pi}$ **B.** $r = \sqrt{2A / pi}$ **C.** $r = \sqrt{pi / A}$ **D.** $r = \sqrt{A / pi}$

b.Use the correct formula you found in part a and pi = 3 to find r when A = 48 square
feet.
    r = _____

7. A company charges a flat fee of 1500 dollars to rent a yacht. In addition, renters must pay 100 dollars per hour.

a. Which equation shows the cost C to rent a yacht for h hours?

    A. C = 100 + 1500 × h   **B.** C = 1500 × h   **C.** C = 100 × h + 1500   **D.** C = 100 × h + 1500 × h

b. How much would it cost you to rent a yacht for 5 hours?

c. What is the slope of the cost? what is the y-intercept?

d. Using the answers for c, graph the cost on the coordinate system.

8. Escalator 1 has a rise of 6 and a run of 4. Escalator 2 has a rise of 12 and a run of 6. Do the escalators have the same slope? Explain with math computation.

9. Celita has a garden shaped like a square. How does the area changes if she triples the length of each side?

    A. The area of the garden is tripled   **B.** The area of the garden is nonupled
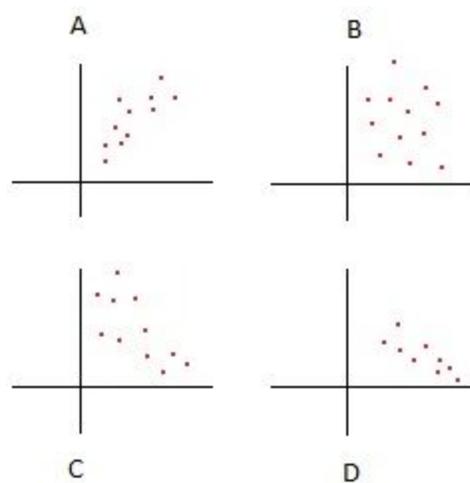   **C.** halved   **D.**sextupled

10. Find the volume of a cone with a radius of 8 inches and a height of 3 inches. (Hint: Use $v = 1/3 (pi × r^2 × h)$

11. Look at the figure above and then tell which graph(s) show the following correlation.

Positive correlation. _____

Negative correlation_____

No correlation_____

A   B

C   D

b . If a scatter plot shows a negative correlation, which line of best fit could represent the scatter plot?

A. y = x - 5   **B.** y = -1000x + 5000   **C.** y = 100x - 7   **D.** y = 5

12. What is the equation of a line that has a slope of 3/5 and a y-intercept of 2?

A. 5y + 3x = 10   **B.** 5x - 3y = 10   C. 5y - 3x = 10   **D.** 5x + 3y = 10

13. Triangle ABC has vertices (1,1), (3,5), and (5, 3). This triangle is dilated by a factor of 3. What are the images of the 3 vertices. Graph ABC and the image A'B'C'

14. The diagonal of a square computer screen is 50 inches. What is the perimeter of this TV? _____

15. 100 students take a survey to see what kind of ice cream people in America like to eat. Which of the following will most **likely** flaw the survey?

A. Some students were not born in the United States **B.** The students were not young enough **C.** The survey may not include people who travel 50 miles to get ice cream **D.** Choose students from a variety of schools.

16. Which statement shows the similarity between the following 2 graphs?

4y = 2x + 0.5 and 4y = 5x + ½

A. The y-intercepts are the same **B.** The graphs are identical

C. The x-intercepts are the same **D.** The slopes are the same

17. A tree is 8 feet tall and cast a shadow that is 6 feet. a. If your child's height is 4 feet, which equation can you use to find the length of his shadow?

a. Which proportion can you use to solve this problem?

A. 8/5 = 6/x   **B.** 4/6 = x/8   **C.** 8/4 = 6/x   **D.** x/4 = 8/6

b. What is the length of the shadow?_____

18. The cup below is 2/3 full. How much water can the cup hold? _____