Name _____   **Date** _____

8th Grade Semester 1 Assessment

Standard   <u>**Show your work. Write your answer on the line to the right.**</u>

1. Write the quotient of $\left(6.72 \times 10^9\right) \div \left(3.2 \times 10^2\right)$ in scientific notation.   1._____

EE.4

2. Write the product of $\left(1.7 \times 10^9\right) \times \left(1.4 \times 10^2\right)$ in scientific notation.   2._____

EE.4

3. In 2010, the population of Sweden was about 9.413×10^6. The population   3._____

EE.3   of Switzerland was about 7.783×10^6. About how much more was the

EE.4   population of Sweden than Switzerland? Write your answer in
       scientific notation.

4. A very small dust particle has a diameter of about 0.004 inches. Most cells   4._____

EE.3   of living organisms have diameters of about

EE.4 4×10^{-4} inches. Which is larger, the dust   _____
       particle or the typical cell in a living
       organism? Justify your answer.   _____

5. Graph the numbers $\sqrt{8}, 1.4, \frac{1}{2}, \pi, \sqrt{64}$ on a number line. Then, order   5._____

NS.2   the numbers from least to greatest.
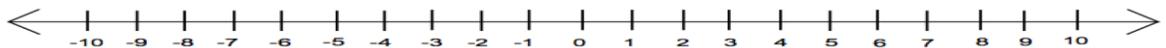
NS.2   6. Is the square root of 2 a rational or irrational number?   6._____

NS.2   7. $-\sqrt{29}$ is between two integers. Find the two integers.   7._____

NS.2   8. $\sqrt{136}$ is between two integers. Find the two integers.   8._____

NS.2   9. A square kitchen floor has an area of 400 square feet. Find the length   9._____
            of one wall to the nearest foot.

G.7   10. A telephone worker needs to run a wire from the top of a 40-foot   10._____
            telephone pole to the ground. He measures the distance from the base of
            the pole to the point of the ground where the wire would end to be 30 feet.
            Use the Pythagorean Theorem to find the length of wire that the worker
            will need. Show your work.

G.7   11. A ladder that is 13 feet tall is leaning against the edge of a wall. If the 11._____
            bottom of the ladder is 5 feet from the wall, how far up the wall is the
            top of the ladder? Show your work and draw a picture of the situation.

12. A telephone pole breaks and falls as shown. To the nearest foot, find the missing measurement in the diagram below. Then find, to the nearest foot, the height of the pole before it broke. Show your work.

12._____

G.7

_____

7 ft

10 ft
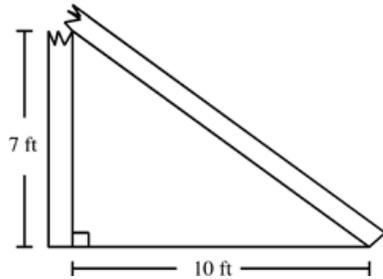
13. A figure is dilated by a scale factor of 5. If the center of the dilation is the origin, what would the ordered pair $(2, 8)$ be after the dilation?
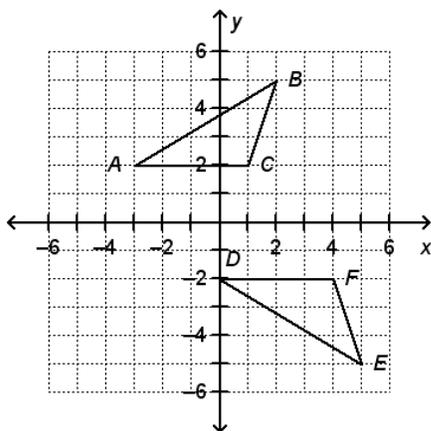
13._____

G.3

14. Is $\triangle ABC \sim \triangle DEF$? If so, give a sequence of transformations that maps $\triangle ABC$ to $\triangle DEF$. If not, explain.

14. _____

G.4

_____

_____

15. Use <u>one or more</u> of the following terms to write a justification why $\angle 2$ and $\angle 7$ are congruent in the diagram below.
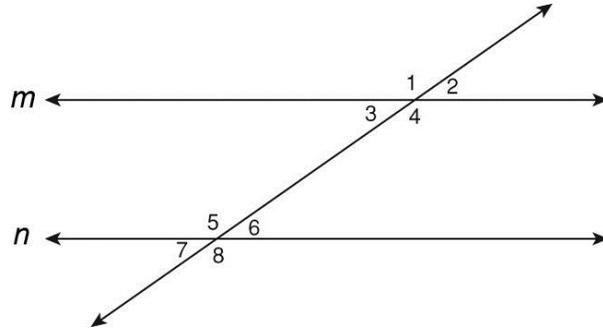
G.5

15. _____

_____

Terms: vertical angles
alternate interior angles _____
alternate exterior angles
corresponding angles _____
supplementary angles

Answer Key

1. 2.1×10^7
   Total Points: 4 (two points for correct number and decimal place; one point for x10; one point for correct exponent)

2. 2.38×10^{11}
   Total Points: 4 (two points for correct number and decimal place; one point for x10; one point for correct exponent)
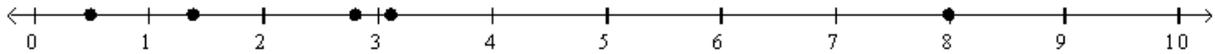
3. 1.630×10^6
   Total Points: 4(two points for correct number and decimal place; one point for x10; one point for correct exponent)

4. The dust particle is larger, because $4 \times 10^{-4} = 0.0004$, and $0.004 > 0.0004$.
   Total Points: 4 (two points for answer; two points for justification)

5.

$\frac{1}{2}, 1.4, \sqrt{8}, \pi, \sqrt{64}$

Total Points: 4 (two points for all points on number line and two points for order from least to greatest)

6. irrational
   Total Points: 4

7. -5 and -6
   Total Points: 4 (minus one point for missing negative)

8. 11 and 12
   Total Points: 4

9. $A = s^2$
   $400 = s^2$
   $s = 20$ feet
   Total Points: 4 (minus one for if not label with feet)

10. $c^2 = 40^2 + 30^2$
    $c^2 = 1600 + 900$ **1 point**
    $c^2 = 2500$ **2 points**
    $c = \sqrt{2500}$
    $c = 50$ **3 points**
    50 feet   **4 points including label**
    Total Points: 4 (points based on level of work and answers a student had)

11. $a^2 + b^2 = c^2$
    $5^2 + b^2 = 13^2$ **1 point**
    $25 + b^2 = 169$ **2 points**
    $b^2 = 144$ **3 points**
    $b = 12$ feet   **4 points**
    Total Points: 4 (points based on level of work and answers a student had)

12. $a^2 + b^2 = c^2$
    $7^2 + 10^2 = c^2$
    $49 + 100 = c^2$ 1 point
    $149 = c^2$ **2 point**
    c is about 12 feet   **3 points**
    total height $12 + 7 = 19$ ft   **4 points**
    Total Points: 4 (points based on level of work and answers a student had

13. (10, 40)
    Total Points: 4 (minus one for missing parenthesis, minus 2 if one number is correct but not the other)

14. Yes.
    Example of a correct sequence is to first reflect $\triangle$ *ABC* across the x-axis.
    Then translate the image right 3 units.
    Total Points:4 (2 points for Yes, and 2 points for a correct sequence.)

15. **Total Points: 4** (accept any complete and correct justification. Teacher discretion for partial credit for partially correct justifications)

8th Grade Semester 1 Assessment Score Sheet

Standards

1. _____/4   EE.4

2. _____/4   EE.4

3. _____/4   EE.3, EE.4

4. _____/4   EE.3, EE.4

5. _____/4   NS.2

6. _____/4   NS.2

7. _____/4   NS.2

8. _____/4   NS.2

9. _____/4   NS.2

10. _____/4   G.7

11. _____/4   G.7

12. _____/4   G.7

13. _____/4   G.3

14. _____/4   G.4

15. _____/4   G.5

Total Score _____/