Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Summative Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**6th Grade Math**

**The Number System – Rational Numbers Review Guide**

1. Write the definitions for the following words:

opposite numbers \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

absolute value \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2.) What is the opposite of each number below?

a. $-\frac{3}{5}$ \_\_\_\_\_\_\_\_\_\_\_\_\_ b. 5 \_\_\_\_\_\_\_\_\_\_\_\_\_ c. - (-7) \_\_\_\_\_\_\_\_\_\_\_

3.) What is the *opposite of the opposite* of -45? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 4.) Evaluate: a. $|$ -8 | = \_\_\_\_\_\_\_\_ b. $|$ 15 | = \_\_\_\_\_\_\_\_

1. **Draw a point on the number line to mark the number’s location and label with the original number.**

 $-\frac{1}{4}$, $ .75$, $\frac{2}{ 3 }$ , $-1.25$ $ -.5$, $\frac{6}{2}$, $ \frac{3}{3}$



 **-2 -1 0 1 2 3**

1. Order the following decimals on the number line below. **Draw a point on the number line to mark the number’s location and label with the original number.**

 **-2 -1 0 1 2 3**

$ - \frac{3}{5}$ 2.25 - 0.85 $\frac{20}{10}$ 1.88 $-1\frac{4}{5}$ $\frac{4}{10}$

1. What point has the greatest absolute value? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7.) Mr. Dadante was scuba diving in the Bahamas. He was at -25 feet.

a. Describe the elevation of Mr. Dadante in relation to sea level.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b. Mr. Dadante’s son was standing 2 feet above the water on a boat. What is the difference between Mr. Dadante and his son’s location? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8.) Mr. Ehrbar’s thermometer reads -11 °C and Mr. Newsome’s thermometer reads -2 °C .

a. Use absolute value to explain Mr. Ehrbar’s temperature in this situation.

(Think about the definition of absolute value.)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b. Which is the warmer temperature? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ How much warmer? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c. Write an inequality to compare these temperatures. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9.) The table below shows the freezing points of different liquids.

|  |  |
| --- | --- |
| Liquid | Freezing Point |
| Water | $$32$$ |
| Acetone | $$-94$$ |
| Linseed Oil | $$-4$$ |
| Acetic Acid | $$62$$ |
| Oil | -32 |

1. What liquid has the greatest absolute value? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What liquid has the warmest freezing point? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Write an inequality to compare the freezing point of Acetone to Oil. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10.) Tina believes that -14 and 10 are opposites because one is positive and one is negative. Is she correct? Explain your answer using the definition of opposites.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11.) Select all the situations that can be described by the integer -20.

O the temperature rises 20 degrees

O a debit of $20 to your bank account

O an item discounted by $20

O a price increase by $20

O 20 feet below sea level

O a deposit of $20 in a bank account

12.) Select all pairs of points that have a distance of 6 units between them.

 A. (2,4) and (-4,4) D. ( -4,-5) and (-2,-5)

 B. (3,5) and (3,1) E. ( 0,-6) and (0,0)

 C. (-1,3) and (-1,-3) F. (-7,-1 and (1,-1)

13.) The Carousel is located at (10,4) and the Bumper cars are located at (-5, 4) on a coordinate grid map of the Amusement part. What is the distance, in units, between these two points?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. If the Bumper cars were moved and relocated at (4,4), what would be the new distance between the Carousel and Bumper cars?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14.) Line CA is one side of the square CAVS, which is located in Quadrants I and II.

a. What are the coordinates of the given vertices?

 C= \_\_\_\_\_\_\_\_\_\_\_\_\_\_ A= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b. What is the distance from point C to point A?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c. Plot and label vertices V and S. Then, connect all vertices to prove CAVS is a square. What are the missing coordinates?

 V= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ S= \_\_\_\_\_\_\_\_\_\_\_\_\_\_

15.) Vertices S and N make up side SN of rectangle SNOW.

a. What are the coordinates of these two points?

 S= \_\_\_\_\_\_\_\_\_\_ N= \_\_\_\_\_\_\_\_\_\_\_\_

b. Reflect these points over the y-axis. Connect the points

to create rectangles SNOW. Then, write the coordinates.

O= \_\_\_\_\_\_\_\_\_\_\_ W= \_\_\_\_\_\_\_\_\_\_\_\_

c. What is the length of side SN?

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d. What is the length of side NO?

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_