Name_____ Summative Date: _____

6th Grade Math

The Number System – Rational Numbers Review Guide

1.) Write the definitions for the following words:

opposite numbers Two numbers (same number) equal distance from zero in opposite direction... one positive, one negative.

absolute value a number's distance from zero *always positive

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

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

*The double negative cancels out, making the number +7. The opp. is -7.

3.) What is the *opposite of the opposite* of -45? -45 *original number

45 -45

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

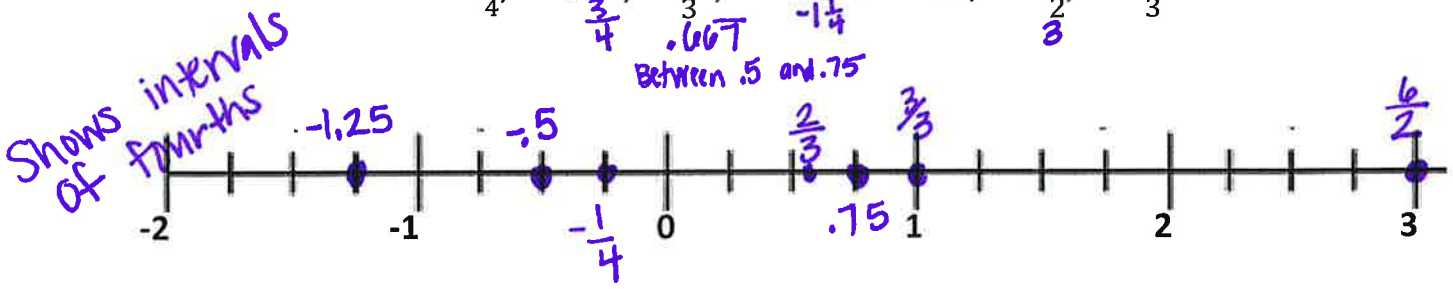
Absolute value

5.) **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 $-.5$, $\frac{6}{2}$, $\frac{3}{3}$

$\frac{3}{4}$ .667 $-1\frac{1}{4}$ $\frac{6}{2}$

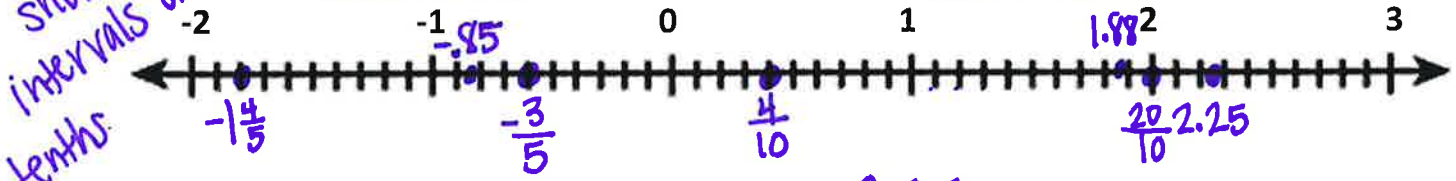
Between .5 and .75



6.) 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.**

$-\frac{3\times2}{5\times2}=\frac{-6}{10}$ 2.25 - 0.85 $\frac{20}{10}=2$ 1.88 $-1\frac{4\times2}{5\times2}=-1\frac{8}{10}$ $\frac{4}{10}$

-.6 Between 2.2 & 2.3 Between .8 and .9 Between 1.8 and 1.9 (closer to 1.9) -1.8



a. What point has the greatest absolute value? 2.25

Furthest from 0

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.

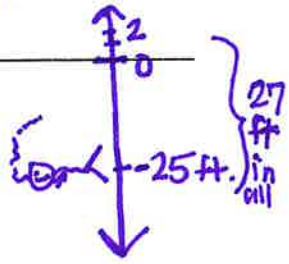
Mr. Dadante was 25 feet below sea level

(indicates he is at a negative elevation)

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? 27 feet

Finding distance between negative and positive, we add using A.V.

$|-25| + |2| = 27$



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.)

Mr. Ehrbar's temperature is 11° below zero.

b. Which is the warmer temperature? -2° is warmer How much warmer? 9° warmer

c. Write an inequality to compare these temperatures. $-11° < -2°$

or $-2° > -11°$

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

a.) What liquid has the greatest absolute value? Acetone

furthest from 0... can be either pos. or neg.

b.) What liquid has the warmest freezing point? Acetic Acid

c.) Write an inequality to compare the freezing point of Acetone to Oil. $-32 > -94$

or $-94 < -32$

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.

No! Tina is incorrect. Yes, opposites have one negative number and one positive, but they are the same number & equal distance from zero in opposite directions.

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

- O the temperature rises 20 degrees
- ✓ a debit of $20 to your bank account
- ✓ an item discounted by $20
- O a price increase by $20
- ✓ 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) $|2|+|-4|=6$

B. (3,5) and (3,1) $|5|-|1|=4$ 5-1=4

C. (-1,3) and (-1,-3) $|3|+|-3|=6$

D. (-4,-5) and (-2,-5) $|-4|-|-2|=2$

E. (0,-6) and (0,0) $|-6|+0=6$

F. (-7,-1 and (1,-1) $|-7|+|1|=8$

Look at both sets of ordered pairs and see which coordinate they have in common... x axis or y axis. Then, look at the coordinate that is different. * If different coordinates are both + or both − subtract A.V. to find distance. * If different coordinates have different signs... + & −, add A.V. to find distance.

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?

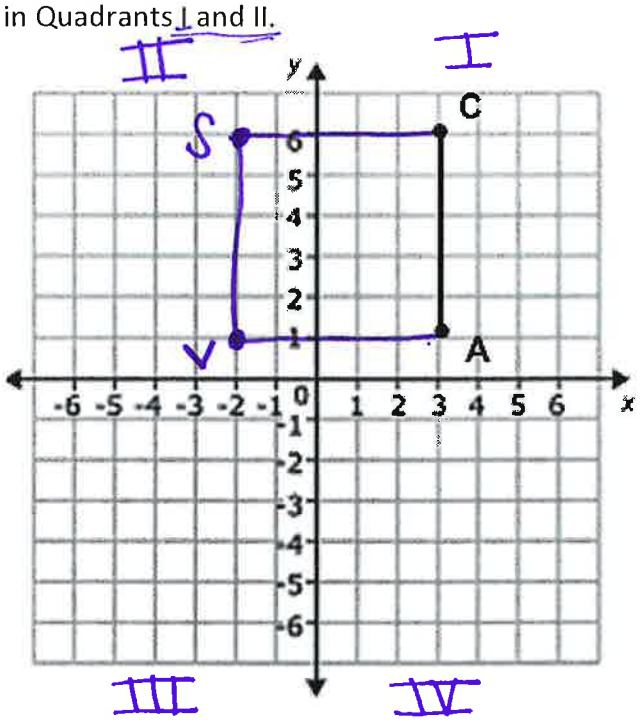
$|10|+|-5|=15$ units

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

(10,4) and

$|10-4|=6$ units

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



a. What are the coordinates of the given vertices?

*Look at the labeled vertices!

C= (3, 6) A= (3, 1)

Square - So all sides equal!!!

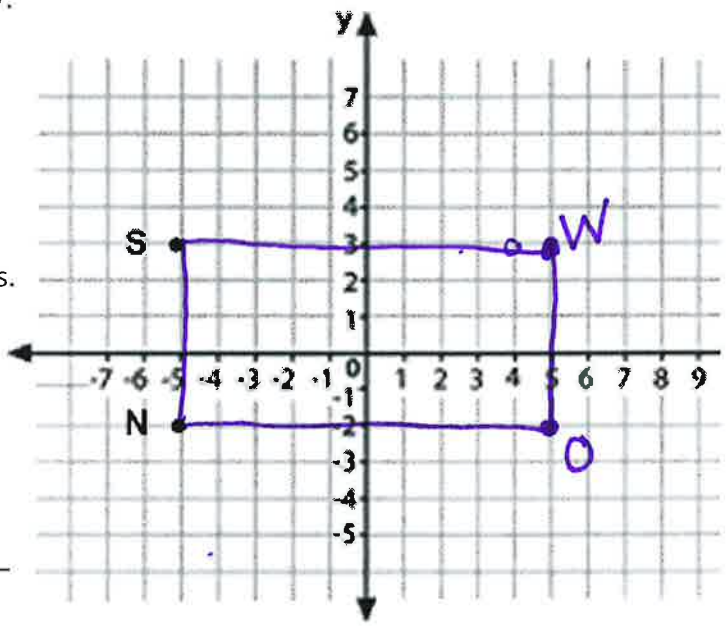
b. What is the distance from point C to point A?

$|6| - |1| = 5$ units

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

V= (-2, 1) S= (-2, 6)

15.) Vertices S and N make up side $\overline{SN}$ of rectangle SNOW.



a. What are the coordinates of these two points?

S= (-5, 3) N= (-5, -2)

b. Reflect these points over the y-axis. Connect the points to create rectangles SNOW. Then, write the coordinates.

When reflecting over y... y axis stays the same, x coordinate becomes its opposite.

O= (5, -2) W= (5, 3)

c. What is the length of side SN? $|3| + |2| = 5$

5 units

d. What is the length of side NO? $|-5| + |5| = 10$

10 units

* side lengths are labeled in units

* Area is labeled in units^2 (square units) to show how much of the space (or squares) are covered.