Name_____Class_____Date_____

REVIEW: RATIONAL NUMBERS AND THE COORDINATE PLANE

The Unit Test is scheduled for _____. Use this review to help

you prepare for these assessments. Make sure you are familiar with the following vocabulary.

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VOCABULARY: **integer, whole number, opposites, rational number, irrational number, negatives, positives, horizontal, vertical, number line, coordinate plane, x-axis, y-axis, origin, quadrants, ordered pair, x-coordinate, y-coordinate, line of symmetry, absolute value, debt, charge, credit, debit, withdrawal, deposit, inequality statement, least common multiple, numerator, denominator, terminating decimal, repeating decimal, perimeter, area, vertex**

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DIRECTIONS: <u>FIRST</u> FILL IN THE HINT BOXES FIRST TO HELP YOU BEGIN THINKING ABOUT EACH PROBLEM. <u>THEN</u> ANSWER THE FOLLOWING QUESTIONS REFERRING TO YOUR CLASS NOTES, IF NEEDED.

| *Hint Box:* |
| --- |
| *What makes a number rational?* |
| *What types of numbers can be rational?* |
| *Give an example of an integer that is NOT a whole number.* |
| *List the integers between 0 and -5.* |

PART 1: RATIONAL NUMBERS

1.) Give a value that makes the statement below true.

50.4 < _____ < 50.48

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2.) Determine if each of the following values is rational or irrational. Provide a reason for each.

Value	Rational or Irrational?	Reason
-0.92		
$\sqrt{7}$		
$-5.\overline{3}$		
1		

- -

3.) Determine the opposite of -2.57

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4.) Evaluate –(-10).

PART 2: RATIONAL NUMBERS ON THE NUMBER LINE

5.)   Label the approximate value of each point on the number line below using a fraction or a decimal.
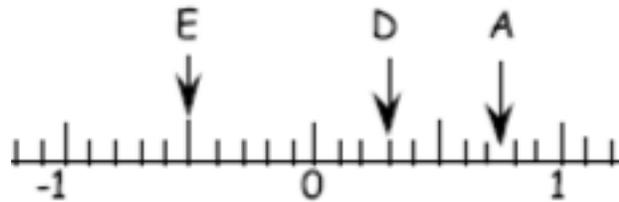
SCALE _____

$$-2 \quad -1\tfrac{1}{2} \quad -1 \quad -\tfrac{1}{2} \quad 0 \quad \tfrac{1}{2} \quad 1 \quad 1\tfrac{1}{2} \quad 2$$
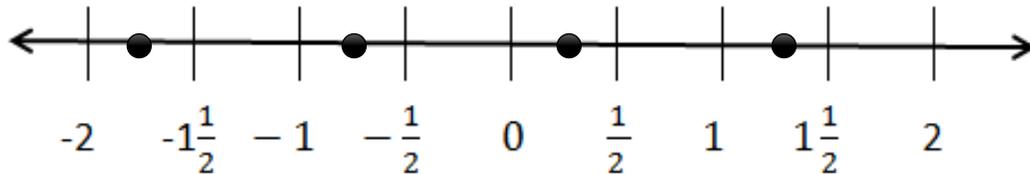
6.)   Label each letter with a point on the number line below.

   a. Determine the scale of the number line below. _____

   b. What is the value of each of the points E and D as a fraction and a decimal?

E _____

D _____

7.)

$$-2 \qquad A \;\; -1 \qquad\qquad 0 \qquad\qquad 1 \qquad\qquad 2$$

   a.   Determine the scale of the number line above. _____

   b.   Write the value of point A as a mixed number.

   A _____

8.)   On the number line below, point X can be represented using fractions and decimals. List all the possible answers to represent the value of X.
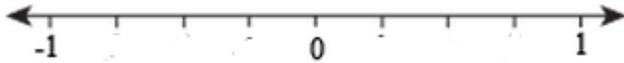
X

0   **1**
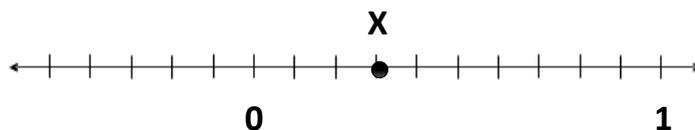
PART 3: COMPARING AND ORDERING RATIONAL NUMBERS

Compare the following using <, > or =. Show your thinking by using either the number line, LCD, or changing the values to the same form (that is changing fractions to decimals.)
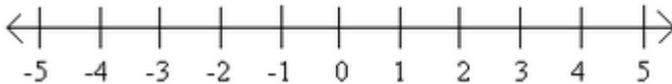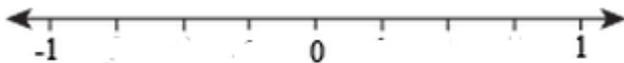
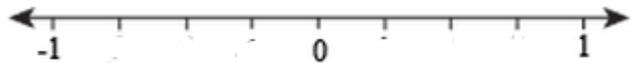**9.)**

    a.   -0.75 _____ -0.8

    b.   -0.8_____ -0.75

-1   0   1

10.)   -2.6 _____ $-3\frac{1}{2}$

-5 -4 -3 -2 -1 0 1 2 3 4 5

11.) $-\dfrac{5}{10}$ _____ $-\dfrac{3}{4}$

-1   0   1
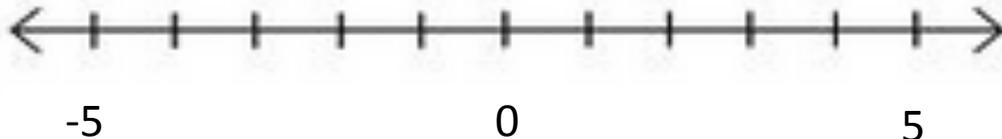
12.)   0.6 _____ $\dfrac{6}{10}$

-1   0   1

13.)   Graph and order the following rational numbers from least to greatest.

    5.0   -0.75 $-2\frac{1}{2}$ $4\frac{1}{2}$ -1   4   -4.25 $\dfrac{4}{5}$

-5   0   5

Hint Box:

What methods can be used to order and compare fractions and decimals?

What methods can be used to order and compare decimals?

What does LCD stand for?

What is the LCM of 8 and 12? Show thinking below.

PART 4: ABSOLUTE VALUE

14.) Find the absolute value.

    a. $|-105.4|$ = _____

    b. $|-8 \frac{1}{4}|$ = _____

    c. $|5.328|$ = _____

15.) Compare the following using <, > or =.

    a. $|-4.7|$ _____ $|5|$

    b. $|9 \frac{1}{2}|$ _____ 9.9

    c. $|6.5|$ _____ $-6 \frac{1}{2}$

    d. $|3.852|$ _____ $|-3.85|$

16.) Find the missing value(s).

    a. $|\boxed{}| = 7$

    b. $|\boxed{}| = 3.27$

17.) Write a rational number to describe the following situations.

    a.) Credit Card Debt of $89 _____

    b.) Credit of $145.32 _____

    c.) Debit of $104.56 _____

18.) Which has the greatest impact on an account balance – a withdrawal of $45.87 or a deposit of $40.23?

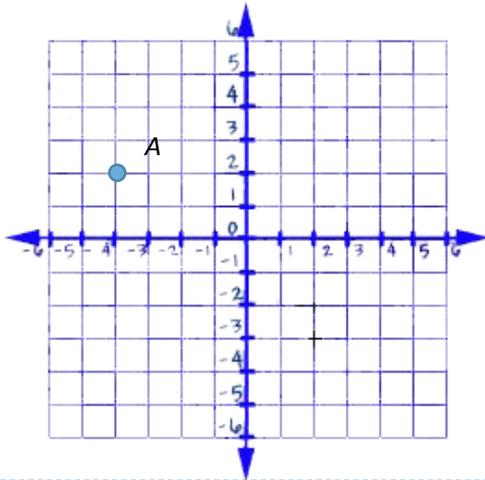19.) Sarah has an account balance of less than -$98. Fill in the blanks below to best describe the size of her debt.

Sarah has a debt of _____ _____ (more than, less than, or equal to) $98.

PART 5: REFLECTIONS

Use the coordinate plane below to answer the following questions.

20.)   Reflect point A over the x-axis.

Write the coordinates: _____

21.)   Reflect point A over the y-axis.

Write the coordinates: _____

22.) Reflect (-7, 3) across the y-axis. Write the coordinates: _____

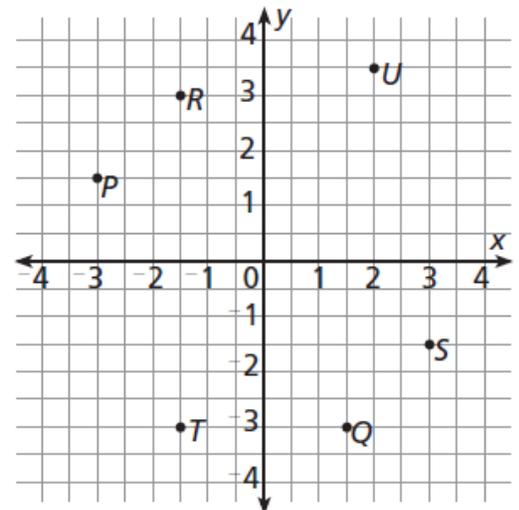**23.)**   The points (-13, 16) and (13, 16) are reflected over which axis? _____

24.)   The points (4, -20) and (-4, -20) are reflected over which axis? _____
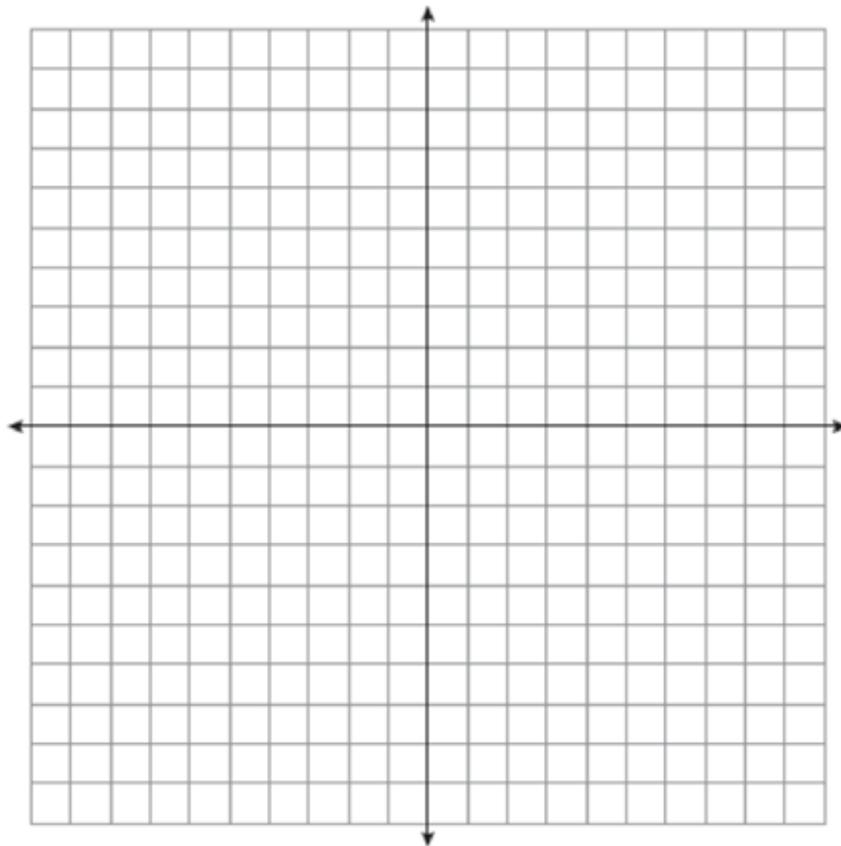
PART 6: THE COORDINATE PLANE

25.)   Name the ordered pair of the following points. Then state the quadrant or axis of its location.

Point	Ordered Pair	Quadrant or Axis
P		
Q		
R		
S		
T		
U		

26.)   Plot the following points A through H on the coordinate plane below. **Use a scale of ½ on the x-axis and a scale of ¼ on the y-axis.**

A(-4.5, 2)   E(-1.5, -2.5)

B(-3, 0)

$F(4\frac{3}{4}, 0)$

$C(\frac{1}{4}, 2)$

G(0.5, 0.75)

D(4.25, 1)

$H(0, 1\frac{1}{2})$

Hint Box:

When plotting a point, list 3 steps to follow:
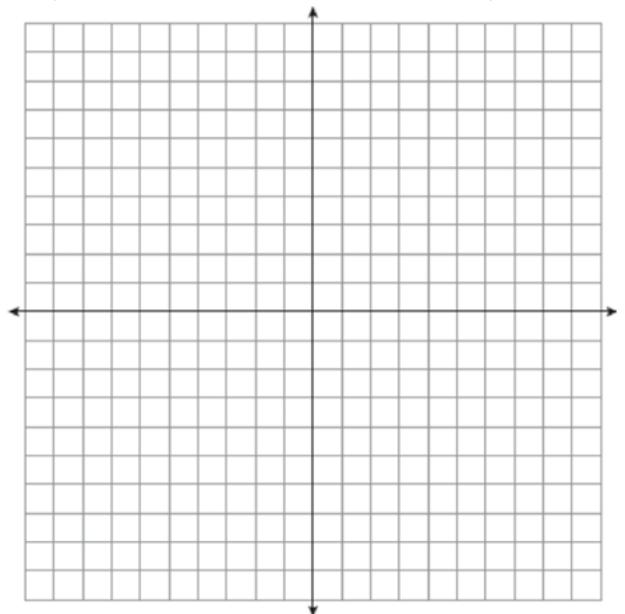
1. _____

2. _____

3. _____

What does an ordered pair look like when the point falls on the x or y axis?

PART 7: DISTANCE ON THE COORDINATE PLANE

27.)   Use the coordinate plane below to find the following distances. (A scale of 1 is being used on both axes.)

a. The distance between (0, -6) and (0, 9)

b. The length of the segment with endpoints (2, -3) and (-6, -3).

c. Find the distance between (-3, -4) and (-3,6).

28.) Find the length of the line segment with endpoints (5, 9) and (5, -11).

Hint Box:

What mathematical concept do you use to find the distance between two points?

When finding the distance between two points, when do you add the absolute values and when do you subtract?

What is a line segment?

If two points don't fall on an axis, how do you know if points are on the same side or different sides of zero?

29.) Find the distance between the points (2, -7) and (10, -7).

30.) The point below that is 6 units away from (8, -3). Find the missing coordinate.

$$(8, \boxed{})$$

PART 8: GEOMETRIC FIGUES IN THE COORDINATE PLANE

31.) Plot the vertices of the figure below to answer the following questions.

A(-4, 3), B(1, 3), C(1, -2), D(-4, -2)

What type of figure is formed? _____

Length of $\overline{BC}$ = _____

Perimeter of ABCD = _____

Area of ABCD = _____