

# Math 6 - Unit 7: Rational Explorations

## Study Guide

Name: \_\_\_\_\_

Class Period: 1 2 3 4 Date: \_\_\_\_\_

1) What is the difference between finding the opposite of a number and finding its absolute value?

\_\_\_\_\_

2) Which coordinate stays the same when you are reflecting a point over the x-axis?

\_\_\_\_\_

3) Evaluate:

3a)  $|-9|$     3b)  $|11|$     3c)  $-|-23|$     3d)  $|0|$

4) Write the numbers in order from least to greatest?

4a) 2, -5, -17,  $|-9|$ , 7, 0

4b)  $|-11|$ , -7, -83,  $|-89|$ , 3, -1

5) Mark each of the numbers below as an integer (I) or not (N)?

5a) 4 \_\_\_\_\_    5b) 0 \_\_\_\_\_    5c)  $-\frac{3}{4}$  \_\_\_\_\_    5d) -10 \_\_\_\_\_    5d) 4.5 \_\_\_\_\_

6) The table below shows today's temperature for 5 cities. Which statement is TRUE? \_\_\_\_\_

City	Richmond	Knoxville	Atlanta	NYC	Boston
Temperature (°Celsius)	-22	-11	-20	-19	-13

a) Knoxville is colder than Richmond.

c) Boston is colder than Knoxville.

b) Atlanta is the coldest city.

d) Richmond is the warmest city.

7) **Fill in each  $\bigcirc$  with  $<$ ,  $>$ , or  $=$  to make a true statement.**

7a)  $|-14|$   $\bigcirc$  -14

7b) 8  $\bigcirc$  -36

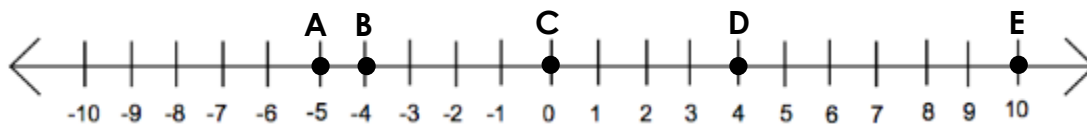
7c) 0  $\bigcirc$  -30

7d) -4  $\bigcirc$  4

7e)  $|-8|$   $\bigcirc$  8

7f) 0  $\bigcirc$   $|-57|$

**Use the number line for questions 8-9.**

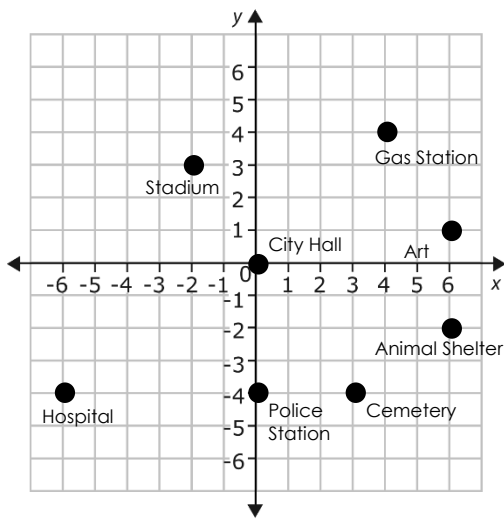


8) Which point is represented by -5? \_\_\_\_\_

9) Which integer represents the **opposite** of Point E in the number line? \_\_\_\_\_

10) What is the opposite of -56? \_\_\_\_\_

**Use the map to answer questions 11-14. Each unit represents one block.**



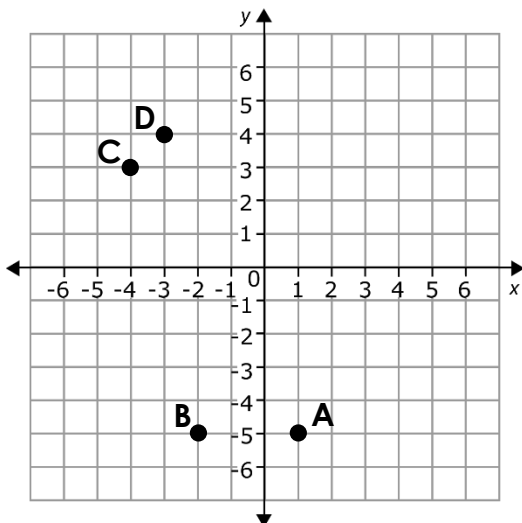
- 11) Which ordered pair represents the location of the Hospital?
- 12) How many blocks apart are the police station and the city hall?
- 13) Which building is located in quadrant III?
- 14) Which building is located 4 blocks south of the origin?

- 15) Write an integer to represent, "Ben added 10 songs to his iPod?" \_\_\_\_\_
- 16) Write an integer to represent, "Lizzie went diving 50 feet underwater?" \_\_\_\_\_
- 17) According to the data in the table, which student's test score changed the most between Test 1 and Test 2? \_\_\_\_\_

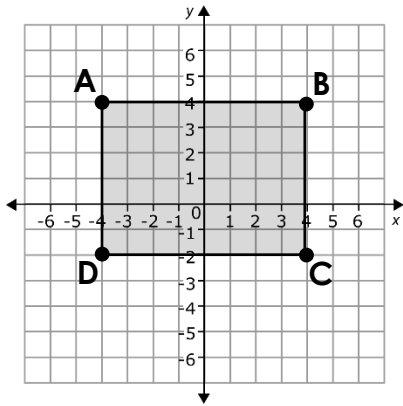
<u>Student</u>	<u>Test 1 Score</u>	<u>Test 2 Score</u>	<u>Change from Test 1 to Test 2</u>
Montserrat	100	97	-3
Samya	88	95	7
Kathleen	92	89	-3
Samuel	90	75	-15

- 18) Tariq's bank account shows a \$0 balance. Estephanie's bank account shows a -\$43 balance. Reece's bank account shows a \$24 balance. Which friend's bank account has a greater **absolute value**? \_\_\_\_\_
- 19) If you reflect the point (-3, -2) across the y-axis, what would be the coordinates of the reflected point? (HINT: You may use the coordinate plane below to help you!) \_\_\_\_\_

**Use the coordinate plane for questions 20-23.**



- 20) Which point is located at (-4,3)? \_\_\_\_\_
- 21) What are the coordinates of point B? \_\_\_\_\_
- 22) Which point is located in Quadrant IV? \_\_\_\_\_
- 23) Which statement is true for points B and A?
  - a) B and A are reflections across the x-axis
  - b) B and A are reflections across the y-axis
  - c) B and A are reflected across both axes
  - d) B and A are not reflections

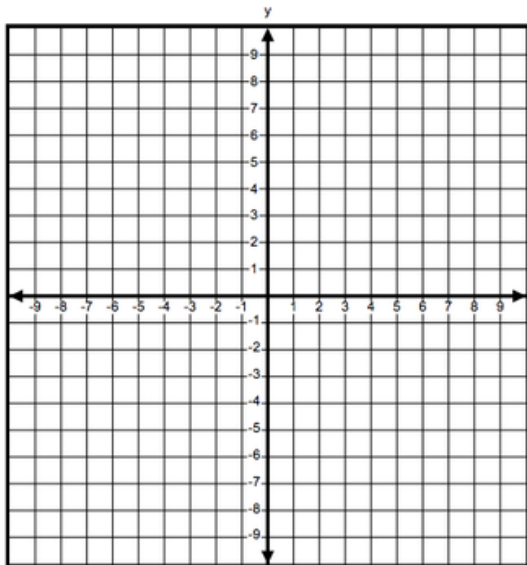


**Use the coordinate plane for questions 24-26.**

- 24) What is the distance between Point A and Point D?
- 25) What is the perimeter of rectangle ABCD?
- 26) What is the area of rectangle ABCD?

27) Put the rational numbers in order from least to greatest?  $3, 0, -7, -\frac{3}{7}$

28) The ordered pairs  $(2, -7)$ ,  $(-4, -7)$ , and  $(2, 3)$  are three vertices of a rectangle. Which ordered pair is the 4<sup>th</sup> vertex? Use the coordinate plane below to find the 4<sup>th</sup> vertex and then find the perimeter and area for the rectangle.



28a) What are the coordinates of the 4<sup>th</sup> ordered pair? \_\_\_\_\_

28b) Area: \_\_\_\_\_

28c) Perimeter: \_\_\_\_\_

# Math 6 - Unit 7: Rational Explorations

Study Guide

## ANSWER KEY

Name: \_\_\_\_\_

Class Period: 1 2 3 4 Date: \_\_\_\_\_

1) What is the difference between finding the opposite of a number and finding its absolute value?

**Opposites are the same distance from zero but on opposite sides of the number line.  
Absolute value is the positive distance a number is from zero on a number line.**

2) Which coordinate stays the same when you are reflecting a point over the x-axis?

**The y-Coordinate**

3) Evaluate:

3a)  $|-9|$  **9**    3b)  $|11|$  **11**    3c)  $-|-23|$  **-23**    3d)  $|0|$  **0**

4) Write the numbers in order from least to greatest?

4a) 2, -5, -17,  $|-9|$ , 7, 0 **-17, -5, 0, 2, 7,  $|-9|$**

4b)  $|-11|$ , -7, -83,  $|-89|$ , 3, -1 **-83, -7, -1, 3,  $|-11|$ ,  $|-89|$**

5) Mark each of the numbers below as an integer (I) or not (N)?

5a) 4 **I**                      5b) 0 **I**                      5c)  $-\frac{3}{4}$  **N**                      5d) -10 **I**                      5e) 4.5 **N**

6) The table below shows today's temperature for 5 cities. Which statement is TRUE? **C**

City	Richmond	Knoxville	Atlanta	NYC	Boston
Temperature (°Celsius)	-22	-11	-20	-19	-13

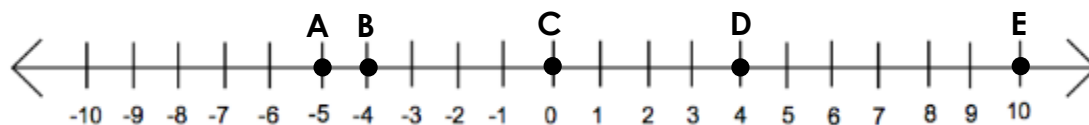
- a) Knoxville is colder than Richmond.                      c) Boston is colder than Knoxville.  
b) Atlanta is the coldest city.                                      d) Richmond is the warmest city.

7) **Fill in each  $\bigcirc$  with  $<$ ,  $>$ , or  $=$  to make a true statement.**

7a)  $|-14|$   $\bigcirc$   $>$  -14                      7b) 8  $\bigcirc$   $>$  -36                      7c) 0  $\bigcirc$   $>$  -30

7d) -4  $\bigcirc$   $<$  4                                      7e)  $|-8|$   $\bigcirc$   $=$  8                      7f) 0  $\bigcirc$   $<$   $|-57|$

**Use the number line for questions 8-9.**

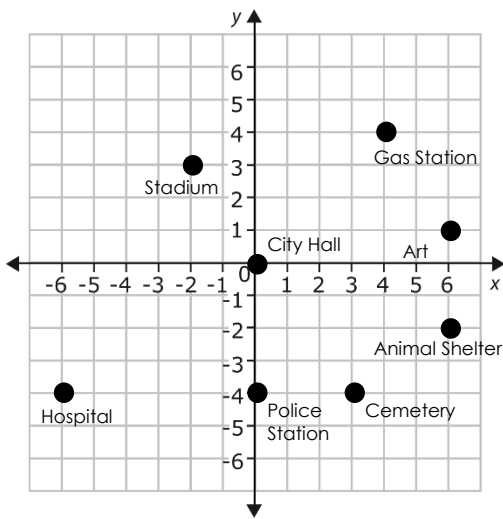


8) Which point is represented by -5? **A**

9) Which integer represents the **opposite** of Point E in the number line? **-10**

10) What is the opposite of -56? **56**

**Use the map to answer questions 11-14. Each unit represents one block.**



- 11) Which ordered pair represents the location of the Hospital? **(-6, -4)**
- 12) How many blocks apart are the police station and the city hall? **4 blocks**
- 13) Which building is located in quadrant III? **Hospital**
- 14) Which building is located 4 blocks south of the origin? **Police Station**

17) Write an integer to represent, "Ben added 10 songs to his iPod?" **10**

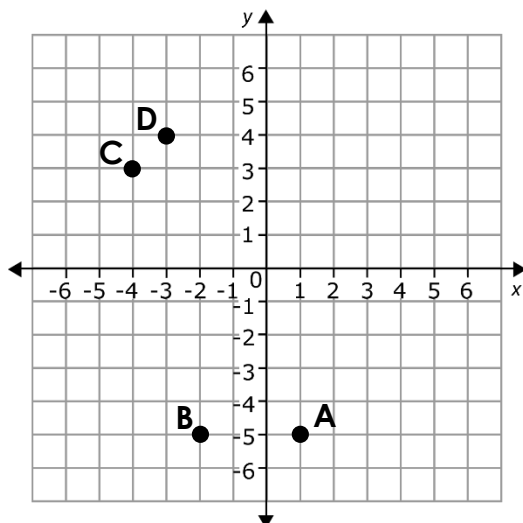
18) Write an integer to represent, "Lizzie went diving 50 feet underwater?" **-50**

17) According to the data in the table, which student's test score changed the most between Test 1 and Test 2? **Samuel**

<u>Student</u>	<u>Test 1 Score</u>	<u>Test 2 Score</u>	<u>Change from Test 1 to Test 2</u>
Montserrat	100	97	-3
Samya	88	95	7
Kathleen	92	89	-3
Samuel	90	75	-15

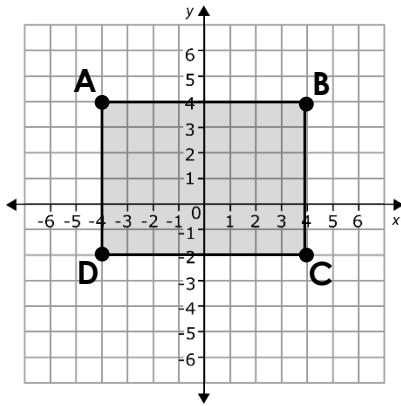
18) Tariq's bank account shows a \$0 balance. Estephanie's bank account shows a -\$43 balance. Reece's bank account shows a \$24 balance. Which friend's bank account has a greater **absolute value**? **Estephanie**

19) If you reflect the point (-3, -2) across the y-axis, what would be the coordinates of the reflected point? (HINT: You may use the coordinate plane below to help you!) **(3, -2)**



**Use the coordinate plane for questions 20-23.**

- 20) Which point is located at (-4,3)? **C**
- 21) What are the coordinates of point B? **(-2, -5)**
- 22) Which point is located in Quadrant IV? **A**
- 23) Which statement is true for points B and A?
- a) B and A are reflections across the x-axis
  - b) B and A are reflections across the y-axis
  - c) B and A are reflected across both axes
  - d) B and A are not reflections**

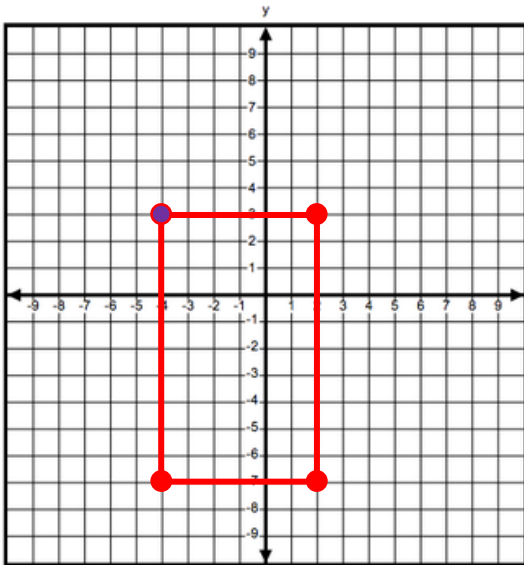


**Use the coordinate plane for questions 24-26.**

- 24) What is the distance between Point A and Point D? **6 units**
- 25) What is the perimeter of rectangle ABCD? **28 units**
- 26) What is the area of rectangle ABCD? **48 units<sup>2</sup>**

27) Put the rational numbers in order from least to greatest? 3, 0, -7,  $-\frac{3}{7}$ ,  $-\frac{3}{7}$ , 0, 3

28) The ordered pairs (2, -7), (-4, -7), and (2, 3) are three vertices of a rectangle. Which ordered pair is the 4<sup>th</sup> vertex? Use the coordinate plane below to find the 4<sup>th</sup> vertex and then find the perimeter and area for the rectangle.



28a) What are the coordinates of the 4<sup>th</sup> ordered pair? **(-4, 3)**

28b) Area: **60 units<sup>2</sup>**

28c) Perimeter: **32 units**