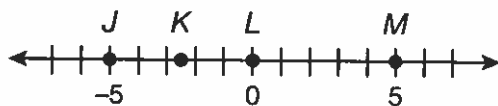
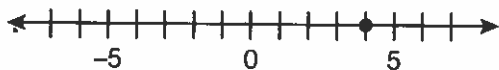


Domain Assessment • The Number System

1. Which point shows the opposite of -5 ?

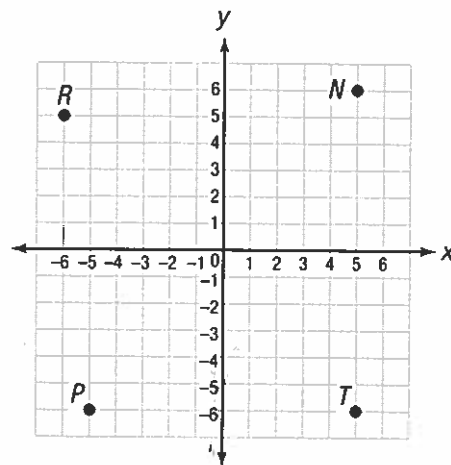


- A. point J
 B. point K
 C. point L
 D. point M
2. Where is 4 located on the number line?



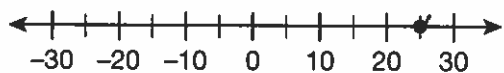
- A. between -3 and 0
 B. between -2 and 1
 C. between 2 and 3
 D. between 3 and 5

3. Which point is located at $(-5, -6)$?

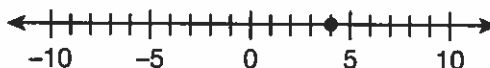


- A. point N
 B. point P
 C. point R
 D. point T
4. Noor has 4 cups of hot chocolate in his thermos. He offers $\frac{5}{8}$ -cup servings of hot chocolate to some friends. What is the greatest number of friends Noor can offer hot chocolate to?
- A. 4
 B. 5
 C. 6
 D. 7

5. What is the absolute value of the number represented by the point on this number line?



7. The number line shows the opposite of -4 .



What is the opposite of the integer plotted on the number line?

- A. -25
B. 0
C. 5
D. 25
6. Nisha is following a recipe for tomato sauce that calls for $1\frac{3}{4}$ teaspoons of oregano. She is using a measuring spoon that holds $\frac{1}{8}$ teaspoon. How many times will she need to fill the measuring spoon with oregano to make the tomato sauce?
- A. 11
B. 12
C. 13
D. 14
8. Find the quotient: $1,203 \div 3$
- A. 301
B. 400
C. 401
D. 4,010
9. Which of the following statements is **not** true?
- A. -11 is the opposite of 11 .
B. 0 is the opposite of 0 .
C. 5.3 is the opposite of 3.5 .
D. 21 is the opposite of -21 .

10. Andie is taking a sewing class. Her first assignment is to stitch together 49 identical fabric rectangles from end to end to create a long banner. If each rectangle measures 8.3 centimeters long, what will be the length of the completed banner?

- A. 334.7 cm
- B. 406.7 cm
- C. 467 cm
- D. 539 cm

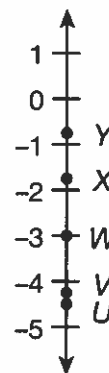
11. Dora earns an annual salary of \$85,608. How much does she earn every month?

- A. \$6,144
- B. \$7,134
- C. \$7,144
- D. \$7,234

12. Hassan ran 3 miles in 18.342 minutes. Safaya ran the same distance in 19.291 minutes. How much longer did it take Safaya to run 3 miles than Hassan?

- A. 0.939 min
- B. 0.949 min
- C. 0.959 min
- D. 1.051 min

13. Scientists noticed a sudden spike in algae production along the coast. To monitor the algae activity, experts measured the depth in meters of the largest algae colony from the surface of the water every day for five days. The number line below shows the depths they recorded.



On the sixth day, experts measured -2.24 meters. Between which two points would this measurement fall on the number line?

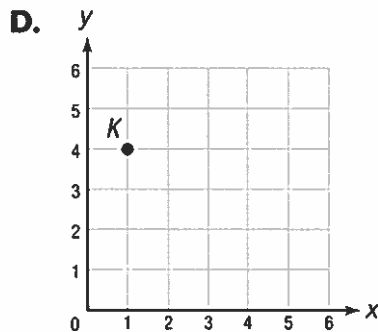
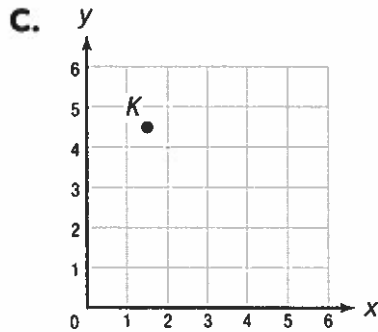
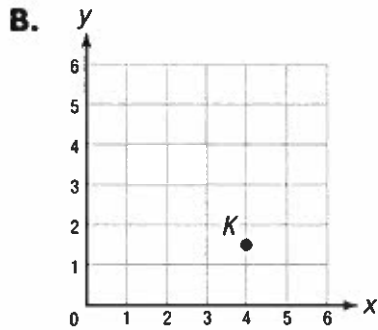
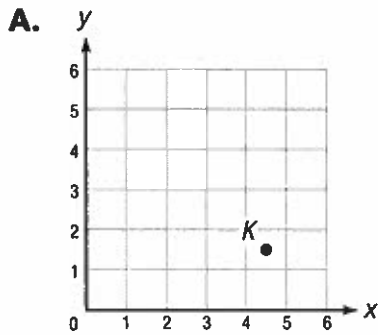
- A. between points U and V
- B. between points V and W
- C. between points W and X
- D. between points X and Y

14. On the coldest night last winter, the temperature in Julia's hometown was -12°F . How many degrees Fahrenheit below 0 was the temperature?

- A. -21 degrees because -21°F is below 0°F .
- B. 0 degrees because $12 - 12 = 0$.
- C. 12 degrees because $|-12| = 12$.
- D. 24 degrees because $12 + 12 = 24$.

Go On ►

15. Which graph shows point K at $(4.5, 1.5)$?



16. Nisha is putting 64 cookies and 40 chocolate truffles into gift boxes. Each box will have the same number of cookies and chocolate truffles. What is the greatest number of boxes Nisha can make with no cookies or chocolate truffles left over?

- A. 6
- B. 7
- C. 8
- D. 9

17. Oliver climbed 222 meters of a steep mountain to reach the summit. He then rappelled down the other side of the mountain to return to the base. Which integer best represents Oliver's descent?

- A. -444
- B. -222
- C. 0
- D. 222

18. Paul, Raul, and Saul had a competition to see who could pick the greatest amount of strawberries in three minutes. Paul picked $1\frac{5}{8}$ pounds of strawberries, Raul $1\frac{3}{4}$ pounds, and Saul $1\frac{11}{16}$ pounds. Who came in second? Show your work.

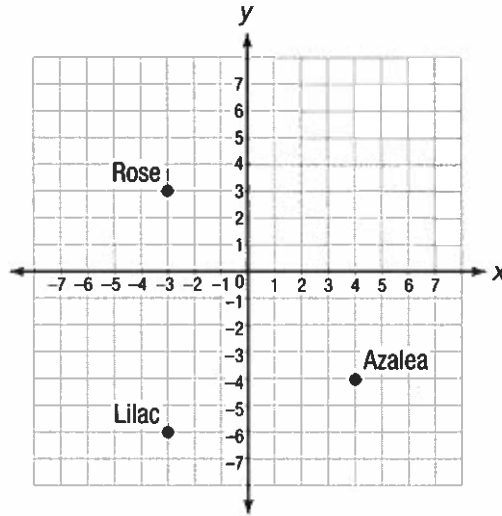
19. Amina tested the temperature of a chemical in her science lab every hour for five hours. She recorded the following temperatures in degrees Celsius.

4.4, -5.9, -2, 3.1, -7.6

- A. In the space below, draw a number line and plot the data points. Then use comparative symbols to order the temperatures from coldest to warmest.

20. A landscape designer is using the diagram below to plan a client's backyard.

Client's Backyard



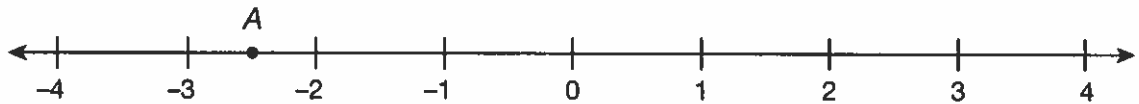
- A. The hydrangea plant will be located at (4, 6). Plot and label this point on the map.
- B. The length of each square on the map represents one foot in the garden. How far apart has the designer placed the hydrangea and azalea plants? Explain how you can use absolute value to find the answer.

Name _____

Rising 8th Grade

Domain Assessment • The Number System

1. Point A is shown on the number line below.

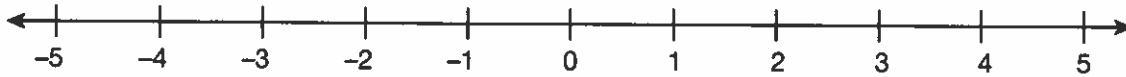


Which of the following is the additive inverse of the number represented by point A?

- A. -3.5 C. 2.5
B. -2.5 D. 3.5
-
2. Evaluate: $-8 + 8$
- A. -16
B. 0
C. 8
D. 16
3. If a , b , c , and d are non-zero integers, which of the following is equal to $\frac{a}{b} \cdot \frac{c}{d}$?
- A. $\frac{ac}{bd}$
B. $\frac{ad}{bc}$
C. $\frac{ac}{b+d}$
D. $\frac{ad}{b+c}$
4. Which of the following is equal to $37 - 49$?
- A. $49 - 37$
B. $(-37) + 49$
C. $37 + (-49)$
D. $37 - (-49)$

Go On ►

5. A number line is shown below.



Which of the following expressions represents the distance between -4 and 5 on the number line?

- A. $|-4 + 5|$ C. $|-5 - (-4)|$
 B. $|4 - 5|$ D. $|-4 - 5|$
-
6. Divide: $-\frac{5}{12} \div -\frac{5}{8}$
- A. $-1\frac{1}{2}$
 B. $-\frac{2}{3}$
 C. $\frac{2}{3}$
 D. $1\frac{1}{2}$

7. Marissa simplified the expression shown below as follows.

$$10 - 25 - 6 + (-2)$$

$$-15 - 6 + (-2) \quad \text{Step 1}$$

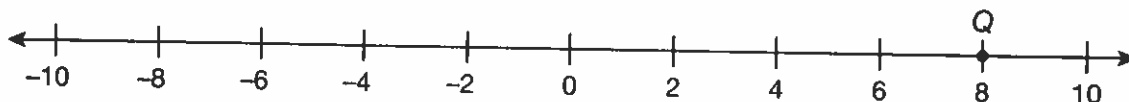
$$-9 + (-2) \quad \text{Step 2}$$

$$-11 \quad \text{Step 3}$$

Which of the following best describes Marissa's mistake?

- A. In Step 1, she should have replaced $10 - 25$ with 15 , not -15 .
 B. In Step 1, she should have replaced $10 - 25$ with -35 , not -15 .
 C. In Step 2, she should have replaced $-15 - 6$ with -21 , not -9 .
 D. In Step 3, she should have replaced $-9 + (-2)$ with -7 , not -11 .

8. On the number line shown below, point Q has a value of 8.



What number must be added to 8 to get a sum of 0?

- A. -8 C. 0
B. -4 D. 8
9. Simplify: $\frac{4}{9} \div 12$
- A. $\frac{1}{27}$
B. $\frac{3}{16}$
C. $\frac{16}{3}$
D. 27
10. An electrician in Louisville, KY is cutting sections of copper wire from a coil that is 42 meters long. Each section is $2\frac{1}{3}$ meters long. How many $2\frac{1}{3}$ -meter sections will she have when she finishes?
- A. 6
B. 7
C. 18
D. 96
11. What is the value of the expression $-6 \div 0$?
- A. -6
B. 0
C. 6
D. undefined
12. Evaluate: $-\frac{2}{7} - \frac{3}{8} + \frac{1}{4} + \frac{2}{7}$
- A. $-\frac{23}{28}$
B. $-\frac{1}{8}$
C. $\frac{25}{56}$
D. $\frac{5}{8}$
13. Evaluate: $\frac{2}{3} \cdot \left(-\frac{1}{6}\right)$
- A. -4
B. $-\frac{1}{9}$
C. $\frac{1}{9}$
D. 4

14. Evelyn and her brother ate an afternoon snack of mixed nuts when they came home from school. Evelyn ate $\frac{1}{2}$ cup and her brother ate $\frac{1}{4}$ cup of nuts. If there were $2\frac{2}{3}$ cups of nuts in the container before their snack, how many cups were left after they finished?
- A. $1\frac{3}{4}$
B. $1\frac{11}{12}$
C. $2\frac{5}{12}$
D. $2\frac{11}{12}$
15. The energy consumption of an appliance is measured in kilowatt-hours (kWh) and is the product of the kilowatts per hour the appliance uses and the number of hours it uses energy. The Soto family's clothes dryer uses $2\frac{1}{2}$ kilowatts per hour. If Mr. Soto runs the clothes dryer for $\frac{3}{4}$ hour, how much energy will it use?
- A. $1\frac{3}{4}$ kWh
B. $1\frac{7}{8}$ kWh
C. 2 kWh
D. $3\frac{1}{3}$ kWh
16. Which of the following is a way to find the value of $-4 + (-6)$?
- A. Find the absolute value of the sum of 4 and 6.
B. Subtract 4 from 6 and find the absolute value of the difference.
C. Find -4 on a number line and then move 6 units to the right.
D. Find -4 on a number line and then move 6 units to the left.
17. Which of the following situations could be represented by the equation shown below?
- $$-2\frac{1}{2} + 6 = 3\frac{1}{2}$$
- A. The temperature one morning was $-2\frac{1}{2}$ degrees Celsius ($^{\circ}\text{C}$). It increased by 6°C during the day to reach a high of $3\frac{1}{2}^{\circ}\text{C}$.
B. Jana studied for $2\frac{1}{2}$ hours, starting at 6:00 P.M., so she still needs to study for $3\frac{1}{2}$ more hours.
C. Luke spent $2\frac{1}{2}$ dollars on a salad and another 6 dollars on a sandwich, so he has $3\frac{1}{2}$ dollars left.
D. Manuel is $2\frac{1}{2}$ miles away from the end of a bicycle race. He is riding at a speed of 6 miles per hour, so he will finish in $3\frac{1}{2}$ hours.

18. Which of the following best describes a situation in which the sum of a number and its opposite is equal to 0?
- A. Sonya spends 8 hours volunteering for \$0 per hour, for a total pay of \$0.
 - B. Doug has 3 swings his first time at bat in a baseball game and another 3 swings his second time at bat, but makes a total of 0 hits.
 - C. Yvette overdrew her account with a check, making her balance $-\$10$. She deposited \$10, bringing her balance to \$0.
 - D. The lowest temperature in Ji-Yeon's town last year was -4 degrees Fahrenheit ($^{\circ}\text{F}$), and the lowest temperature this year was also -4°F , which is a difference of 0°F .
19. A trail in a bird sanctuary is $\frac{7}{8}$ mile long. There is an information placard every $\frac{1}{16}$ mile along the trail. Which of the following expressions represents the number of information placards along the trail?
- A. $\frac{7}{8} - \frac{1}{16}$
 - B. $\frac{7}{8} \cdot \frac{1}{16}$
 - C. $\frac{\frac{1}{16}}{\frac{7}{8}}$
 - D. $\frac{\frac{7}{8}}{\frac{1}{16}}$
20. A geologist finds a layer of shale $2\frac{3}{4}$ feet below ground level, represented by the number $-2\frac{3}{4}$, and a layer of limestone $4\frac{1}{8}$ feet below ground level, represented by the number $-4\frac{1}{8}$. What is the distance between these two layers?
- A. $1\frac{3}{8}$ feet
 - B. $1\frac{5}{8}$ feet
 - C. $2\frac{5}{8}$ feet
 - D. $6\frac{7}{8}$ feet

21. The fraction $\frac{2}{9}$ is equal to $2 \div 9$. Use long division to find the decimal value of $\frac{2}{9}$. Show your work.

22. Evaluate: $-\frac{1}{2}\left(-1 + \frac{2}{5}\right)$. Show your work.

23. Mr. Thompson bought 9 pounds of colored glass pebbles for his aquariums. He used $\frac{3}{5}$ pound in his small aquarium and divided the remaining pebbles equally among his 3 larger aquariums. The expression below represents the number of pounds of glass pebbles Mr. Thompson put in each of his larger aquariums.

$$\frac{1}{3}\left(9 - \frac{3}{5}\right)$$

- A. How could this expression be rewritten using the distributive property? Explain how this change would make the expression easier to evaluate.

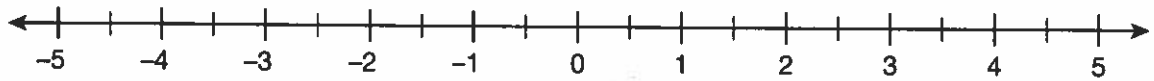
- B. Evaluate the expression you wrote in part A. How many pounds of glass pebbles did Mr. Thompson put in each of his larger aquariums?

24. Melda has $7\frac{7}{8}$ cups of flour in her pantry. Her favorite bread recipe uses $2\frac{1}{4}$ cups of flour for one loaf.

- A. Set up a complex fraction that represents the number of loaves of bread that Melda can make with the flour in her pantry.

- B. Simplify your complex fraction from part A to solve, and express your answer as a mixed number. Explain what the whole number and fractional parts of the mixed-number answer each represent in the context of the situation.

25. A number line is shown below.



A. Plot the point $4\frac{1}{2}$ on the given number line.

B. What is the opposite of the number $4\frac{1}{2}$?

C. Use the number line and the definition of additive inverse to explain why the number $4\frac{1}{2}$ and its opposite are additive inverses.

