

## Unit 1: NS.2, 3 and 4

1. A bus in Atlanta leaves the main station every 6 minutes, and a bus in Macon leaves the main station every 9 minutes.

At 7:03 a.m., buses leave the stations in both Atlanta and Macon.

When will buses leave both stations at the time again?

2. Two radio stations decided to release new songs after January 1st. One radio station releases a new song every 4 days. Another radio station releases a new song every 6 days.

How many times in 45 days will **BOTH** radio stations play a new song on the same day?

3. Based on the United States Constitution, a census of the population must occur every 10 years. Elections for the United States House of Representatives occur every 2 years. In 2020, both will occur.

What is the earliest year after 2020 that both a census and elections for the House of Representatives will occur?

4. Which expression is equivalent to  $75 + 24$ ?

A.  $3(25 + 8)$

B.  $25(3 + 24)$

C.  $5(70 + 24)$

D.  $3(75 + 8)$

5. Tacos are served in the cafeteria every 4<sup>th</sup> school day, and hamburgers are served every 6<sup>th</sup> school day.

If both tacos and hamburgers were served today, when is the next day that they will be served on the same day again?

6. David is having a cookout. Hot dogs and buns are sold based on the following quantities per package.

Item	Amount per package
Hot dog buns	12
Hot dogs	10

David thought that he would have to buy 12 packages of hot dog buns and 10 packages of hot dogs to have one bun for each hot dog.

What is the **LEAST** amount of each David would need to buy to have an equal number of hot dogs and buns?

7. Sam's summer job is mowing lawns in his neighborhood. Mr. Friedman wants his lawn cut every 8 days, and Mr. Cooper wants his lawn cut every 12 days.
- If Sam mows both yards today, how many days will it be before he mows both lawns on the same day again?
8. Emma purchased a new dress for \$27.61. How much change will she receive if she pays with a \$100 bill?
9. What is the value of  $25 - 3.9$ ?
10. Jared has \$12.82 in his wallet and \$46.99 in his bank account. How much money does Jared have total?
11. Evaluate:
- $$1.5 + 0.0015 =$$
12. Joshua started the month with \$20.50 in his bank. He earned \$3.75 for washing the car. Then he spent \$5.25 at the movies. Joshua mowed his neighbor's lawn for \$7.50. Finally, he bought a new video game for his computer for \$18.75. How much money did he have in his account at the end of the month?
13. Which equation correctly applies the greatest common factor to the distributive property?
- A.  $11 + 33 = 11(2 + 2)$
  - B.  $15 + 25 = 5(10 + 20)$
  - C.  $32 + 56 = 8(4 + 7)$
  - D.  $48 + 84 = 4(12 + 21)$
14. What is the greatest common factor of 45 and 60?
15. What is the least common multiple of 5 and 10?
16. Last year, the winner of the 50-meter swim finished the race in 27.609 seconds. This year's winner completed the 50-meter swim in 0.032 fewer seconds.
- How long did it take this year's winner to swim 50 meters?

17. What is the value of  $13.23 \times 0.19$ ?

18. Evaluate:

$$10.752 \div 2.8$$

19. Samantha is using ribbon to make bows to be sold at a school fundraiser. She has 83.2 meters of ribbon. She needs 1.28 meters of ribbon for each bow. How many bows she can make?

20. Rebecca charges \$7.50 per hour to babysit. She babysat for 4.5 hours on Saturday, and 2.75 hours on Sunday.

How much will Rebecca make babysitting altogether?

21. Bob is buying the soccer team ice cream after their game today. 8 players want ice cream cookies and 5 players want ice cream cones. If ice cream cones cost \$1.25 each and ice cream cookies cost \$1.75 each, how much will Bob spend on ice cream for the team?

22. Which of the following is equivalent to and shows the greatest common factor of the expression:  $24 + 64$ ?

A.  $4(6 + 16)$

B.  $4(20 + 60)$

C.  $8(3 + 8)$

D.  $8(16 + 56)$

## Unit 2 Review: RP.1, 2, 3 and 4

1. What is the ratio of the shaded squares to total squares?



2. Total Number of Eyes and Ears for Different Numbers of Healthy Horses

Number of horses	Total Number of Eyes	Total Number of Ears
8	4	4
4	8	8
10	20	20

In a herd of 20 healthy horses, what is the ratio of eyes to ears?

3. Mr. Ryan was setting up the percussion section of the band. The table shows the number of students who will play each instrument in the percussion section.

Students Needed per Percussion Instrument	
Timpani	2
Bass Drum	6
Snare Drum	2
Xylophone	4
Other	4

What is the ratio of students needed to play the xylophone in relationship to the Bass Drum?

4. A map's scale is 2 cm = 35 miles. There are 17 cm between Atlanta and the border of Georgia and Florida on the map.

How many miles are there between Atlanta and the border of Georgia and Florida?

5. A pot holds 16 gallons of soup. A server will empty the pot into one pint containers.

How many containers will the server fill? (1 gallon = 4 quarts, 1 quart = 2 pints)

6. In 2010, there were approximately 75,000 songs released all year. Approximately how many songs were released per month?

7. If the price of 6 pieces of pie is \$4.50, what is the price for 1 piece of pie?

8. Julie can eat 22 hot dogs in 2 minutes for an eating contest. How many can she eat in 5 minutes?

9. Jacob can drive 42 miles per gallon in his new hybrid car. He needs to drive 336 miles next week. How many gallons of gas will Jacob need to drive next week?

10. Veggie's Market sells 5 avocados for \$2.30 and 3 tomatoes for \$2.97. Martina buys 2 avocados and 1 tomato. What is the total cost of her veggies?

11. In a bag of trail mix, there is a ratio of 3 scoops of granola, 2 scoops of chocolate chips, and 1 scoop of peanuts. Martin uses 18 scoops of granola.

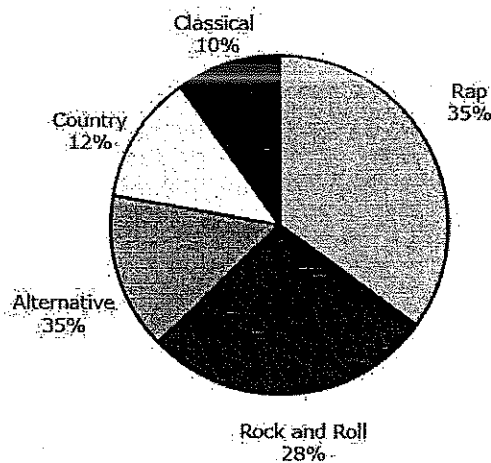
How many scoops of chocolate chips and peanuts will he need to keep the ratio equivalent?

12. A study found that on average there were 566,000 tweets per hour. Using this data, how many tweets are there per minute?

13. Shane can type 275 words in 5 minutes. Hillary can type 240 words in 4 minutes. Who is the fastest at typing and what is their unit rate?

14. Jenny was given a grid with 80 squares. She had to shade in 25% of the squares. How many squares should she shade in?
15. What is 5% of 140?
16. Andre went to the movies and spent \$17, which is 20% of his allowance. How much is his allowance?
17. Maya surveyed 700 students at Adams School about their favorite types of music. How many students prefer rap music?

Music Preferences of Students at Adams School



18. Lucas was studying water samples in Florida. He collected the following data:

Number of Streams	20	40	60
Number of Polluted Streams	5	10	15

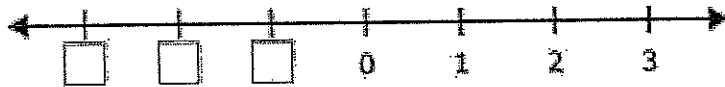
Using the data provided, what percent of the sampled streams are polluted?

19. Pierce took a test with 30 questions each worth one point. How many questions would he need to get correct to make a 90%?

20. Iris paid \$120.00 for a winter coat. She saved 25% off the original price. What was the original price of the coat?
21. There are 110 students in the 6th grade band and 120 students in the 7th grade band. Of the students, 60% of the 6th grade band members and 85% of the 7th grade band members went on a trip Disney World trip. How many more 7th graders went on the trip than 6th graders?

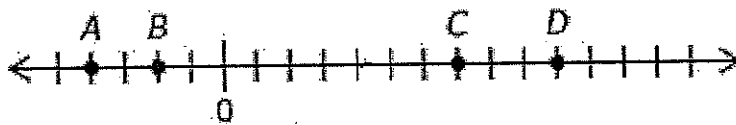
Unit 3 Study Guide – Exploring Rational Numbers and Their Opposites

1. Which values belong in the boxes from left to right?



2. Patrick and Douglas played a board game. Doug had to move back on the board four spaces, so he recorded his turn as  $-4$ . Patrick moved in the opposite direction 4 spaces. Which number represents how Patrick should record his turn?

3. The number line includes points A, B, C, and D.



Which statement is **TRUE**?

- a. Point A represents the opposite of  $-4$ .
  - b. Point B represents the opposite of the opposite of  $-2$ .
  - c. Point C represents the opposite of  $7$ .
  - d. Point D represents the opposite of the opposite of  $-10$ .
4. What is the value of the point on the number line?



5. The table give the lowest record temperatures in Fahrenheit for each of four cities.

<b>City</b>	Savannah	Atlanta	Rome	Columbus
<b>Temperature</b>	-7.5	-12.0	-17.0	-7.0

Which statement is **TRUE** according to the table?

- a. The temperature in Columbus is colder than the temperature in Savannah.
  - b. The temperature in Columbus is the coldest of all the cities.
  - c. The temperature in Rome is the warmest of all the cities.
  - d. The temperature in Atlanta is the second coldest.
6. Ms. Waters listed the following rational numbers on the board:

0.4,  $\frac{1}{4}$ ,  $-\frac{1}{2}$ , -0.3, 0.75, -0.8

Write them in order from least to greatest by **absolute value**.

7. The following chart shows the temperature in three different cities recorded at three different times of the day.

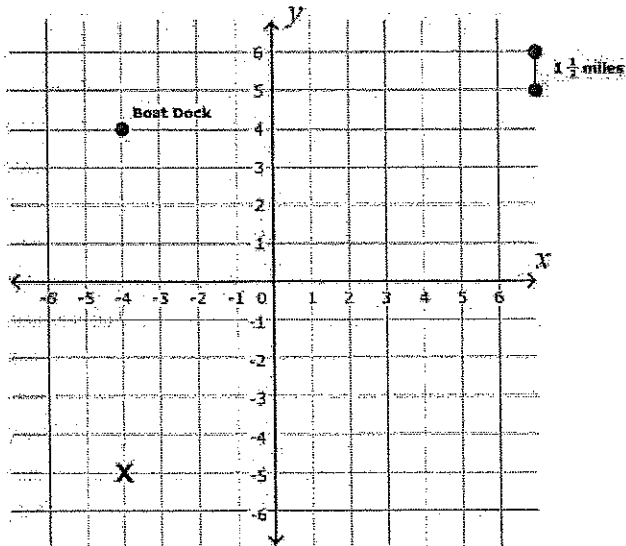
	<b>Glasgow</b>	<b>Moscow</b>	<b>Reykjavik</b>
6:00 am	-5°F	-15°F	-12°F
1:00 pm	0°F	-9°F	-10°F
11:00 pm	-3°F	-12°F	-16°F

On this day in Glasgow, at what time was the warmest temperature recorded? Explain your answer.

On this day at 11:00 pm, was it warmer in Reykjavik than in Moscow? Explain your answer.



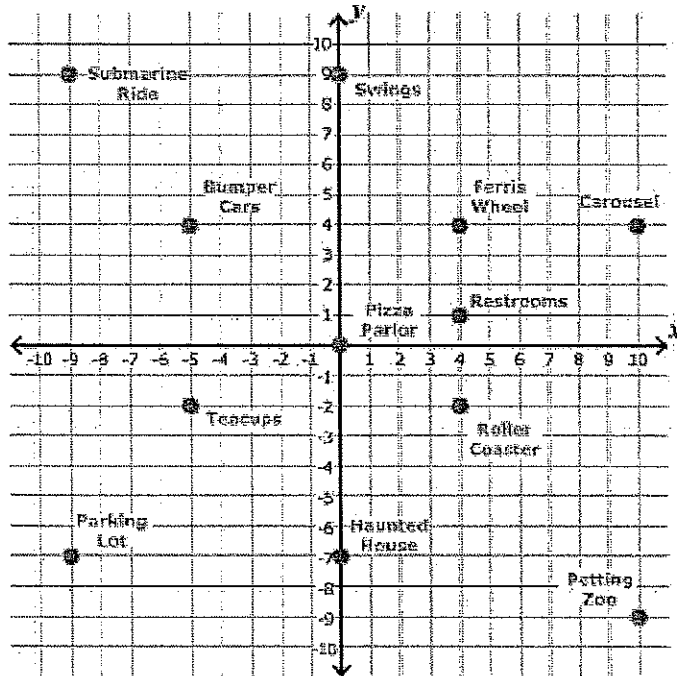
8. Pirate Pete was modeling the distance between where his boat was docked and the location of the treasure (X). The distance between each unit is  $1\frac{1}{2}$  miles.



How far must Pirate Pete walk to reach his treasure?

9. Point A is on the coordinate plane and is represented by the ordered pair (3, 2). The point is moved five units down and labeled as point B. What is the ordered pair for point B?

10. Trevor is looking forward to his annual trip to Farley's Fun Park. He studies a map of the park to prepare for his trip.



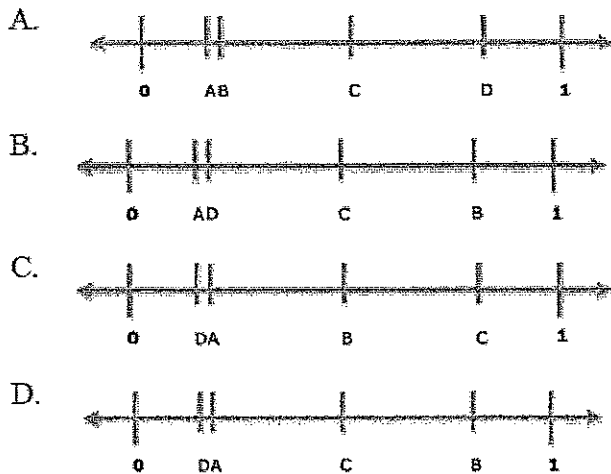
What are the coordinates of the attraction 6 units from the carousel?

Trevor read online that there has been a photo booth build 2 units from the Pizza Parlor and 5 units from the Haunted House. What path could be taken to go from the photo booth to the parking lot if Trevor plans to take one more ride on the teacups?

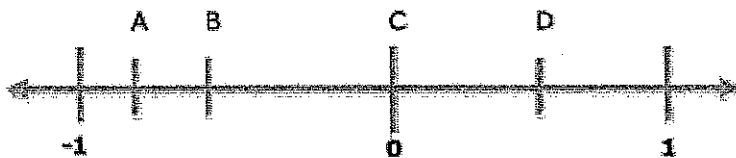
11. The point  $(7, -8)$  has been plotted on a coordinate plane. In which quadrant does the point fall?
12. In which quadrant of the coordinate plane does the point  $(14, -8.5)$  lie?

13.  $A = 0.3$      $B = 0.8$      $C = \frac{1}{2}$      $D = \frac{1}{4}$

Which of the following number lines correctly shows A, B, C, and D?



14. The number line below shows the values of A, B, C, and D. Which of the points **MOST LIKELY** represents -0.5?



15. Trent announced to his class that  $|5|$  is -5 and  $|-5|$  is 5. Heather disagreed with him. She said that  $|-5|$  and  $|5|$  are both 5. Who, if either, is correct? Justify your answer.
16. Sally was analyzing her bank statement and noticed a -\$200 item. What is the meaning of this item on Sally's bank statement?
17. What two values have an absolute value of 7? Explain your answer.

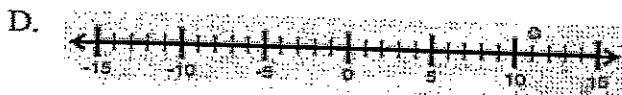
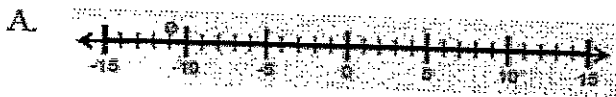
18. The thermometer shows the temperature for Toronto, Ontario. What number best represents the temperature?



19. What is  $-(-16)$ ?

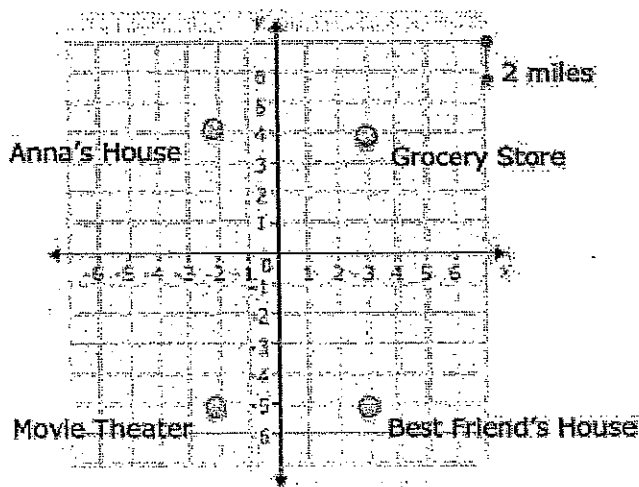
20. In which quadrant on a graph should you plot the point  $(-6.75, 25)$ ?

21. Which of the following number lines has the point  $-9$  graphed correctly?

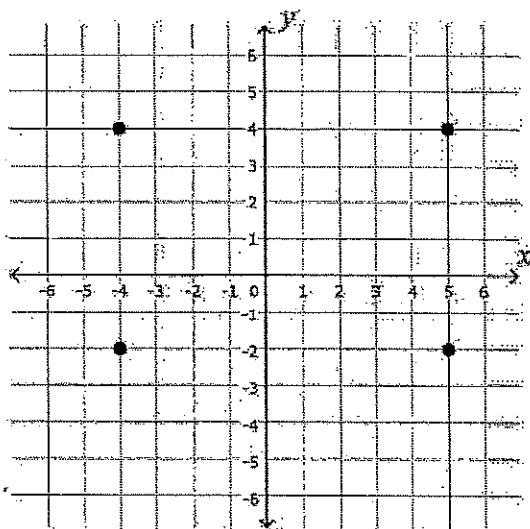


22. Anna used a coordinate plane to map the distance between her house, the movie theater, the grocery store, and her best friend's house. The distance between each unit is 2 miles.

If Anna Drives to all four places creating a perfect rectangle, how many miles will she drive?

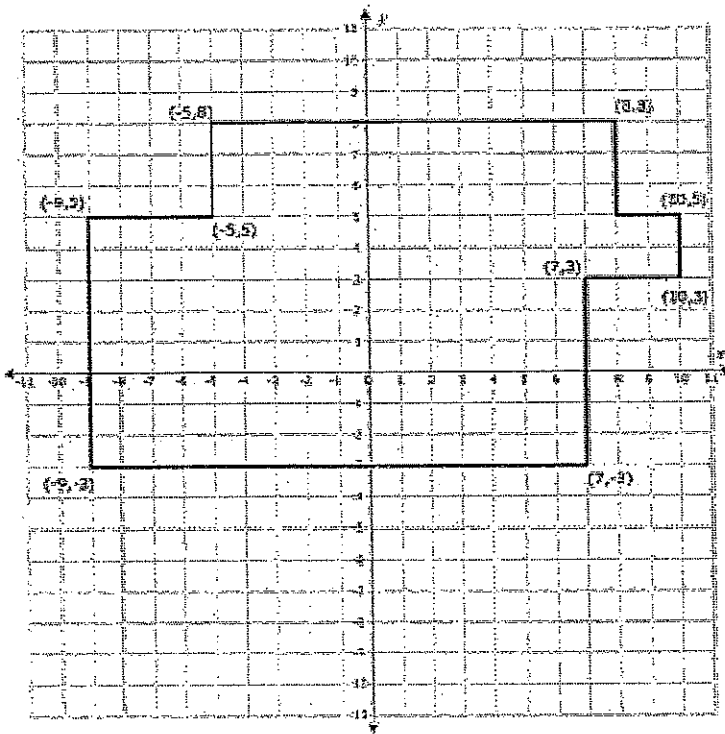


23. Beau plotted four points on a coordinate plane. The points  $(-4, 4)$ ,  $(5, 4)$ ,  $(5, -2)$ , and  $(-4, -2)$  create the rectangle shown below.



What is the perimeter of the rectangle?

24. Mr. Wilson wants to build a fence around the school garden. Dania says that the perimeter of the garden is 57 units, and Jaquan says the perimeter is 60 units. Which student found the correct perimeter? Justify your reasoning.



#### Unit 4 Study Guide: Expressions

1. Mr. Smith wrote  $5x + 4 = 4 + 5x$  on the board. What property is being demonstrated?
2. Evaluate:  
 $4^2 - 3 + 10$
3. Evaluate:  
 $2^5$
4. Evaluate:  
 $4^3 + 3^5$
5. What is 7 raised to the third power?

6. Solve:

$$25 - 16 + 20$$

7. Clark used these steps to solve a problem that involved whole-number exponents.

$$(2 + 3)^2 - 7 \cdot 3$$

$$(5)^2 - 7 \cdot 3$$

$$10 - 7 \cdot 3$$

$$3 \cdot 3$$

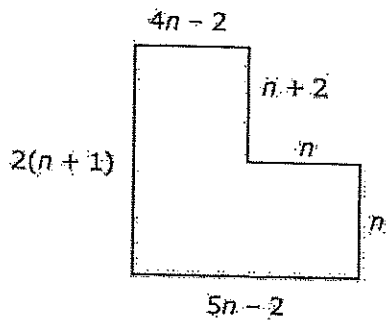
$$9$$

Clark made an error when solving. What were Clark's error(s)? Explain your answer.

What is the correct solution to Clark's problem? Show your work.

8. Write an expression that is equivalent to  $4(u + 11w)$ .

9. Jesse is trying to find the perimeter of the garden. What is the simplest expression that represents the perimeter of the garden?



10. Which pair of expressions are equivalent?

a.  $3x + 2 + 2x$  and  $7x$

b.  $8(x - 3)$  and  $8x - 24$

c.  $5(x + 2)$  and  $5x + 2$

d.  $3(4x)$  and  $7x$

11. Simplify the following expression:

$$a + a - b - b + a + a + a + a + b + b + b$$

12. Which expression is equivalent to  $3(2x + y)$ ?

- a.  $5x + y$
- b.  $6x + y$
- c.  $5x + 3y$
- d.  $6x + 3y$

13. Write the expression for "24 less than  $g$ ."

14. Write the expression for "the product of 17 and the sum of  $r$  and 8."

15. Solve  $(a)(b)(a + c)^2$  when  $a = 3$ ,  $b = 4$ , and  $c = 5$ .

16. Which part of the expression:  $(x - 7) + 3x - 4(5x + 1) - (8 - 6)$  is a term?

17. If  $x = 2$ , what is the value of the expression:  $3x + x - x^2$

18. Jasmine evaluated the expression  $3x + 2$  when  $x = 5$ .

$$3x + 2$$

$$35 + 2$$

$$37$$

Explain Jasmine's mistake and determine the correct value of the expression.