Objective: REVIEW

Integers, Absolute value

Integers include the counting numbers (1, 2, 3, …), their opposites (−1, −2, −3, …), and zero. The number line below shows the integers from −5 to 5. Negative integers have values less than zero, so they are to the left of zero on the number line. Positive integers have values greater than zero, so they are to the right of zero on the number line. Zero is neither negative nor positive.
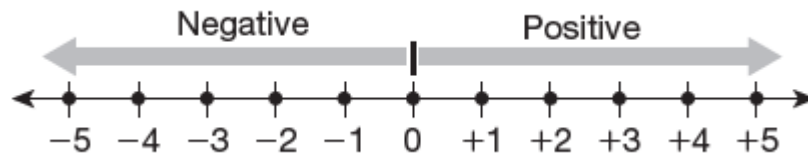

The **absolute value** of a number is its distance from 0 on a number line. Since a distance must be either a positive number or zero, the absolute value of a number is always a positive number or zero. The absolute value of a number x is written as |x|. The integers −4 and 4 are opposites. You can use the number line below to see that each number is the same distance from 0. So, |−4| = 4 and |4| = 4.
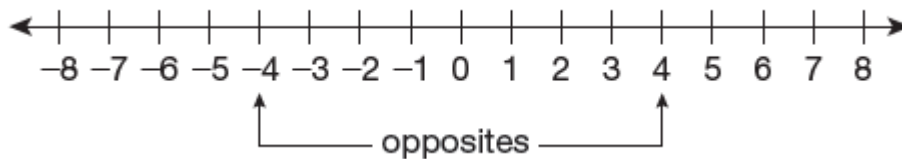
Use the number line for questions 1 and 2.
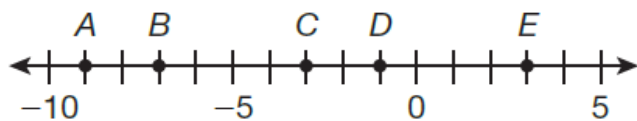
1. Which point on the number line is represented by -7?

   A. point A

   B. point B

   C. point C

   D. point D

2. Which integer is represented by point E?

   A. -3

   B. -2

   C. 2

   D. 3

3. Which situation can be represented by the integer 10?

   A. a temperature drop of 10°F

   B. 10 seconds before takeoff

   C. a growth of 10 centimeters

   D. a fall of 10 feet

4. Which situation would you represent with a negative integer?

   A. a mountain climber descending a mountain

   B. a price increase

   C. a person winning a sum of money

   D. an elevator going from the 2nd floor to the 5th floor

5. New Orleans has an elevation of 7 feet below sea level. How is that elevation, in feet, represented as an integer?

   A. -17

   B. -7

   C. 7

   D. 177

6. What is the opposite of -13?
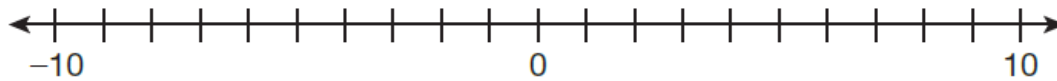
   A. 31

   B. 13

   C. -3

   D. -31

7. What is the opposite of 40?

A. -40

B. -4

C. 4

D. 40

8. What is another way to write $-(-9)$?

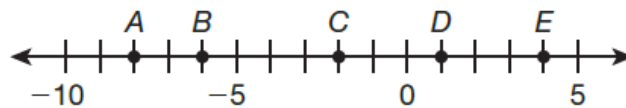A. -99

B. -9

C. 0

D. 9

9. Use the number line below.

A. Plot and label point J at -8, point K at 6, point L at -1, and point M at 4.

B. Point N is the opposite of point J. Plot and label point N on the number line above. Explain how you found the opposite of point J.

_____

_____

_____

10. Look at the number line.

Draw a line from each location to its point.

A. -6 ●   ● point A

B. 1 ●   ● point B

C. -8 ●   ● point C

D. 4 ●   ● point D

E. -2 ●   ● point E

11. Select True or False for each statement.

    A. A temperature drop of 8°F is represented by the integer −8.   ○ True ○ False

    B. Eight miles per hour is represented by the integer −8.   ○ True ○ False

    C. A growth of 8 inches is represented by the integer −8.   ○ True ○ False

    D. Descending 8 feet is represented by the integer −8.   ○ True ○ False

    E. Eight feet below sea level is represented by the integer −8.   ○ True ○ False
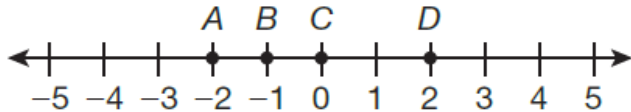
12. Select every true statement.
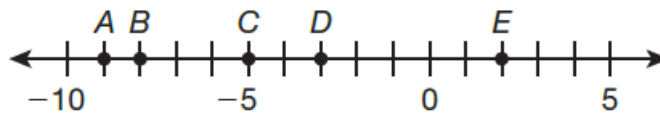
    A. Point A is located at −9.

    B. Point B is located at −7.

    C. Point C is located at −5.

    D. Point D is located at −3.

    E. Point E is located at 1.

1. Which point represents a number with an absolute value of 1?

   A. point A

   B. point B

   C. point C

   D. point D

2. Which statement best describes $|-72|$?

   A. the distance from -72 to 72 on a number line

   B. the distance from -7 to -2 on a number line

   C. the distance from -7 to 2 on a number line

   D. the distance from -72 to 0 on a number line

3. A scientist stores liquid nitrogen at a temperature of $-331°F$. Exactly how many degrees Fahrenheit below $0°F$ is the liquid nitrogen?

   A. 331

   B. 31

   C. 0

   D. -331

4. Which point or points on the number line represent numbers with absolute values of 4?
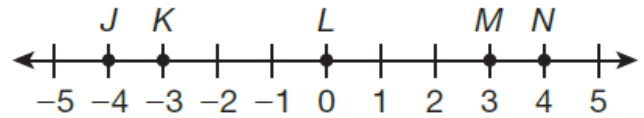
   A. points J and N

   B. points K and M

   C. points K and N

   D. points L and N

5. Lorraine's checking account has a balance of less than $-\$200$. Which statement is true about how much Lorraine owes the bank?

   A. Lorraine owes exactly $200.

   B. Lorraine owes exactly $-$200.

   C. Lorraine owes less than $200.

   D. Lorraine owes more than $200.

Use the information for questions 6 and 7.

Max is a diver. He uses positive numbers to represent elevations above the water's surface and negative numbers to represent elevations below the water's surface. Max is standing on a springboard. He represents his location as 3 meters. He lets a ring drop to the bottom of the pool. He represents its location at the bottom of the pool as -4 meters.

6. If Max dives into the pool from the springboard, how many meters will he fall vertically before he reaches the water's surface?

   A. 4 meters   C. -3 meters

   B. 3 meters   D. -4 meters

7. How many meters below the surface of the water is the ring?

   A. more than 4 meters

   B. less than 4 meters

   C. exactly 4 meters

   D. exactly 3 meters

8. A football coach recorded the results of his team's first 4 plays in its last game. The table below shows his data.

Football Plays

Play	Number of Yards
1	8
2	-2
3	5
4	-7

A. During which play did the team lose the fewest yards? Use what you know about absolute value and the number line below to explain how you determined your answer.
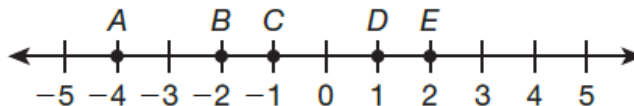

_____

_____
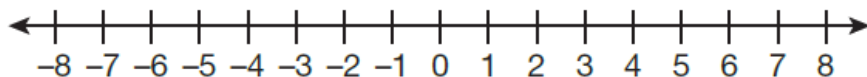
B. During which play did the team gain the most yards? Use what you know about absolute value and the number line above to explain your answer.

_____

_____

9. Select every point that has an absolute value of 2.

- **A.** Point A
- **B.** Point B
- **C.** Point C
- **D.** Point D
- **E.** Point E

10. Select True or False for each statement.

- **A.** $|-58|$ is equal to the distance from -58 to 58 on a number line.　　○ True　○ False
- **B.** $|-58|$ is equal to the distance from 0 to 58 on a number line.　　○ True　○ False
- **C.** $|-58|$ is equal to the distance from 0 to 85 on a number line.　　○ True　○ False
- **D.** $|-58|$ is equal to the distance from -58 to 0 on a number line.　　○ True　○ False

11. Walter's checking account has a balance of $-\$32$. How much does Walter owe his bank, in dollars?

Walter owes the bank
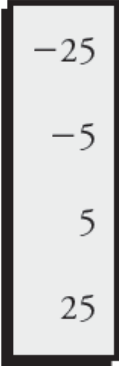$$\boxed{\begin{array}{c} -32 \\ 0 \\ 32 \end{array}}$$.

Objective

Use a number from the box to complete each sentence.

The opposite of 5 is _____.

The opposite of −25 is _____.

The opposite of −(−5) is _____.

The opposite of 25 is _____.

The opposite of −(−25) is _____.

The opposite of −5 is _____.

−25
−5
5
25

Look at each statement. Is the statement true? Select Yes or No.

A. The speed of a biker is represented by a positive integer.   ○ Yes ○ No

B. A price decrease is represented by a positive integer.   ○ Yes ○ No

C. The amount of money that a person earns is represented by a negative integer.   ○ Yes ○ No

D. The altitude of a scuba diver under sea level is represented by a negative integer.   ○ Yes ○ No

Use a number from the box to complete each sentence.

```
      A  B            C  D
  ←—+—+—+—+—+—+—+—+—+—+—+—→
   −5 −4 −3 −2 −1  0  1  2  3  4  5
```

−4
−3
3
4

Point *A* has an absolute value of _____.

Point *B* has an absolute value of _____.

Point *C* has an absolute value of _____.

Point *D* has an absolute value of _____.