Check Your Answers on Integer Basics!

1. $-1, 10, 127$

The set of **integers** includes the set of whole numbers (not fractions or decimals) and their opposites. In other words, the set of integers is $\{\ldots -3, -2, -1, 0, 1, 2, 3, \ldots\}$. $-\frac{1}{4}, \frac{1}{3}, \frac{8}{5}, 6\frac{1}{2}, -6\frac{1}{2}$ are rational numbers, not integers.

2. $-2.25, 0.\overline{3}, \sqrt{5}, \pi$

Although all of the numbers listed are real numbers, only $-100, -7, 0,$ and 2024 are integers. Decimals ($-2.25, 0.\overline{3}$) are rational numbers; $\sqrt{5}$ and π are irrational numbers.

3. $\frac{5}{10}, \sqrt{-9}, \sqrt{10}, 5\%$

Note that $\frac{5}{10} = \frac{1}{2}$ and $5\% = 0.05$ which are rational numbers but not integers.
$\sqrt{10}$ is an irrational number and $\sqrt{-9} = 3i$ which is an imaginary number.
However $\frac{10}{5} = 2, -\sqrt{9} = -3, \sqrt{81} = 9$ and $100\% = 1$ which are all integer values.
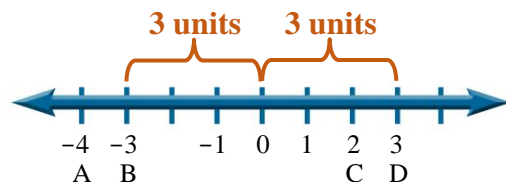
4. -6

The *additive inverse* of a number is often referred to as the "opposite" of the number. It is a number that has the same magnitude or absolute value which is the distance that the number is from zero on a number line.

5. B

Be careful! The scale indicated by the two values given is that every tick mark advances the number by one-half, not one unit.
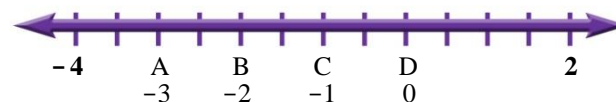
6. B, D

The numbers that are 3 units from 0 are $+3$ and -3. Point B corresponds to -3 and point D corresponds to $+3$.

7. 10

Absolute value is the distance a number is from zero on the number line. It represents the *magnitude* of a number. The sign of a number indicates the direction on the number line.

8. 10

The absolute value of every non-zero real number is positive. Absolute value is defined as the distance, and distance cannot be negative. Absolute value does *not* change the sign of a number!
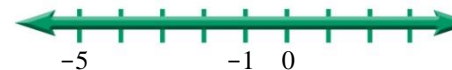
9. -892

Consider placement of these numbers on the number line. Remember that the values on a number line increase from left to right.

10. -5

Of the numbers listed ($-\frac{99}{100}, -5, -11.8, \frac{1}{1001}, 0.0001, -0.0001, -1, 0$), the only integers are $-5, -1,$ and 0. The smallest integer is -5.

Perfect score? Yes! You've got this!! You're ready to move on to the next section!!!