

### Objective 10

Evaluate a multi-step numerical expression involving absolute value

Vocab:

**Absolute value:** the **absolute value** of a number may be thought of as its distance from zero

**PROBLEM**

Evaluate:  $-3|8 - 11| + 7$

**STEP 1**

Evaluate the absolute value expression. Recall that the absolute value of a number is its distance from the origin and is represented as a positive value.

$$\begin{aligned} -3|8 - 11| + 7 &= -3|-3| + 7 \\ &= -3(3) + 7 \end{aligned}$$

**STEP 2**

Follow the rules for order of operations. First multiply and then add.

$$\begin{aligned} -3(3) + 7 &= -9 + 7 \\ &= -2 \end{aligned}$$

**ANSWER**

-2

Guided Practice:

$$|x - 3| = 8$$

$$3|2x - 7| - 5 = 4$$

$$|3x + 5| + 6 = -2$$

$$3|13 - 2t| = 15$$

$$4|2k + 3| - 2 = 6$$

$$\frac{1}{3}|2c - 5| + 3 = 7$$

**Practice:**

1.  $|r - 7| = 9$

2.  $2|s| + 4.1 = 18.9$

3.  $4|t + 9| - 5 = 19$

4.  $2|m - 5| + 4 = 2$

5.  $-3|n + 2| - 7 = -10$

**Additional Help:**

<https://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/absolute-value-equations/v/absolute-value-equations>

<http://www.mathplanet.com/education/algebra-1/linear-inequalitites/solving-absolute-value-equations-and-inequalities>