



# Absolute Value Meaning

Let's investigate absolute values.

## 14.1 Worked Example: Absolute Value Expressions

Find the value of the expression  $5|3 - 12| + 1$

Step 1:  $5|-9| + 1$

Step 2:  $5 \cdot 9 + 1$

Step 3:  $45 + 1$

Step 4: The value of the expression is 46.

## 14.2 What Is Absolute Value?

1. One of the lowest places in Europe is 23 feet below sea level. We can use “-23 feet” to describe its elevation, and “ $|-23|$  feet” to describe its vertical distance from sea level. In the context of elevation, what would each of the following numbers describe?
  - a. 37 feet
  - b.  $|37|$  feet
  - c. -6 feet
  - d.  $|-6|$  feet



2. Water freezes at 0 degrees Celsius. For each pair of temperatures, which temperature is closest to the freezing point of water? Use absolute value to explain your reasoning.
- a.  $14^{\circ}\text{C}$  or  $-15^{\circ}\text{C}$
  - b.  $-5^{\circ}\text{C}$  or  $-2^{\circ}\text{C}$
  - c.  $-12^{\circ}\text{C}$  or  $18^{\circ}\text{C}$

## 14.3 Absolute Value Expressions

Find the value of these expressions.

1.  $|10 - 12|$
2.  $|-16 + 5|$
3.  $3|9 - 4|$
4.  $|8 - 10| - 16$
5.  $2|-13 - 2| + 18$
6.  $9 - |19 + 3|$

