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: $\qquad$ $5|\text{-}9| + 1$

Step 2: $\qquad$ $5 \cdot 9 + 1$

Step 3: $\qquad$ $45 + 1$

Step 4: $\qquad$ 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 "$|\text{-}23|$ 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. $|\text{-}6|$ 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°C or -15°C

   b. -5°C or -2°C

   c. -12°C or 18°C

14.3 Absolute Value Expressions

Find the value of these expressions.

1. $|10 - 12|$

2. $|\text{-}16 + 5|$

3. $3|9 - 4|$

4. $|8 - 10| - 16$

5. $2|\text{-}13 - 2| + 18$

6. $9 - |19 + 3|$

Extra Support Materials for
Algebra 1
Unit 5

Lesson
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