



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

