

7.1 Absolute Value

Absolute Value: the size of a number the distance from zero

$$|x|$$

Example 1

Determining the Absolute Value of a Number

Evaluate the following.

a) $|3| = 3$

b) $|-7| = 7$

Example 2

Compare and Order Absolute Values

Write the real numbers in order from least to greatest.

$$|-6.5|, 5, |4.75|, -3.4, \left|-\frac{12}{5}\right|, |-0.1|, -0.01, \left|-2\frac{1}{2}\right|$$

$$6.5 \quad 5 \quad 4.75 \quad \underbrace{-3.4} \quad \underbrace{2.4} \quad \underbrace{0.1} \quad \underbrace{-0.01} \quad \underbrace{2.5}$$

$$-3.4 \quad -0.01 \quad |-0.1| \quad \left|-\frac{12}{5}\right| \quad \left|-2\frac{1}{2}\right| \quad |4.75| \quad 5 \quad |-6.5|$$

Example 3

Evaluating Absolute Value Expressions

Evaluate the following.

a) $|4| - |-6|$

$$4 - 6$$

$$-2$$

b) $5 - 3|2 - 7|$

$$5 - 3|-5|$$

$$5 - 3(5)$$

$$5 - 15$$

$$-10$$

c) $|-2(5 - 7)^2 + 6|$

$$|-2(-2)^2 + 6|$$

$$|-2(4) + 6|$$

$$|-8 + 6|$$

$$|-2|$$

$$2$$

ORDER
of
OPERATIONS.

BEDMAS

absolute value
counts as
brackets

Example 4

Change in Stock Value

On stock markets, individual stock and bond values fluctuate a great deal, especially when the markets are volatile. A particular stock on the Toronto Stock Exchange (TSX) opened the month at \$13.55 per share, dropped to \$12.70, increased to \$14.05, and closed the month at \$13.85. Determine the total change in the value of this stock for the month. This total shows how active the stock was that month.

$$\begin{array}{r} 13.55 \rightarrow 12.70 \rightarrow 14.05 \rightarrow 13.85 \\ -0.85 \quad +1.35 \quad -0.20 \\ \quad .25 \quad 1.35 \quad 0.20 \\ \quad \quad 2.4 \end{array}$$

Your Turn

Wesley volunteers at a local hospital because he is interested in a career in health care. One day, he takes the elevator from the first floor up to the sixth floor to see his supervising nurse. His list of tasks for that day sends him down to the second floor to work in the gift shop, up to the fourth floor to visit with patients, and down to the first floor to greet visitors and patients. What is the total change in floors for Wesley that day?

$$1 \rightarrow 6 \rightarrow 2 \rightarrow 4 \rightarrow 1$$

$$+5 \quad -4 \quad +2 \quad -3$$

$$5 \quad 4 \quad 2 \quad 3$$

14 floors.

Today: 1-10 pgs.363-364

Tomorrow: 11-21 pgs.365-366