

Solving Absolute Value Equations

STEPS FOR SOLVING:

1. Isolate the absolute value expression
2. Write the problem in TWO CASES

Case 1: Drop the $||$ and keep the number on the opposite side of the equal sign ($=$) positive

Case 2: Drop the $||$ and change the number on the opposite side of the equal sign ($=$) to negative

3. Solve both equations

EXAMPLE 1:

$$|4x + 20| = 32$$

Case 1: $4x + 20 = 32$

Case 2: $4x + 20 = -32$

$$x = \{ _, _ \}$$

EXAMPLE 2:

$$\left| \frac{x}{5} - 10 \right| + 3 = 6$$

Case 1: $\frac{x}{5} - 10 = 3$

Case 2: $\frac{x}{5} - 10 = -3$

$$x = \{ _, _ \}$$