Chapter 6
Section 4

Solving Absolute-Value Equations

6.4 Absolute Value Review

- Absolute Value equations have two answers

Examples:

$|5| = 5$ $|9| = 9$ $|1| = 1$

$|-5| = 5$ $|-9| = 9$ $|-1| = 1$

Solving Absolute Value Equations

- Steps:
  - Isolate the Absolute Value
  - Set equation equal to positive and negative → inside
  - Solve for the Variable
  - CHECK YOUR WORK!

Examples:

1. $|x| = 6$

$x = 6, -6$

2. $|x| = 14$

$x = 14, -14$

Examples:

- 3. $|x| + 3 = 22$

$-3 \quad -3$

$|x| = 19$

$x = 19, -19$

- 4. $|x| - 4 = 12$

$+4 \quad +4$

$|x| = 16$

$x = 16, -16$

Examples

5. $|x| - 7 = 2$

$+7 \quad +7$

$|x| = 9$

$x = 9, -9$

6. $|x| + 6 = 8$

$-6 \quad -6$

$|x| = 2$

$x = 2, -2$

Examples

7.) $|x+1|=2$

$x+1=2$ | $x+1=-2$

$-1 \quad -1$ | $-1 \quad -1$

$x=1$ | $x=-3$

8.) $|x-3|=7$

$x-3=7$ | $x-3=-7$

$+3 \quad +3$ | $+3 \quad +3$

$x=10$ | $x=-4$

Examples

9.) $|2x+1|=9$

$2x+1=9$ | $2x+1=-9$

$-1\ -1$ | $-1\ -1$

$\frac{2x}{2}=\frac{8}{2}$ | $\frac{2x}{2}=\frac{-10}{2}$

$x=4$ | $x=-5$

10.) $|3x-7|=10$

$3x-7=10$ | $3x-7=-10$

$+7\ +7$ | $+7\ +7$

$\frac{3x}{3}=\frac{17}{3}$ | $\frac{3x}{3}=\frac{-3}{3}$

$x=\frac{17}{3}$ | $x=-1$

Examples

11.) $|4x-1|-7=2$

+7 +7

$|4x-1|=9$

$4x-1=9$ | $4x-1=-9$

+1 +1 | +1 +1

$\frac{4x}{4}=\frac{10}{4}$ | $\frac{4x}{4}=\frac{-8}{4}$

$x=2.5$ | $x=-2$

Classwork

- Pg 356 # 6-11

Homework

- Pg 356 # 19-39 odd