

2-5 D1 Notes

Tuesday, November 14, 2023 7:49 AM

Solve - Get the variable on a side by itself.

Why do we need absolute value?

Magnitudes like distance

How to solve problems with absolute value.

- 1) Get rid of the outside stuff
- 2) Check for legality (can't equal a negative)
- 3) Put $\pm$ on other side.

Solve.

$$\begin{aligned} 2) |x| &= 2 \\ x &= \pm 2 \\ \{ \pm 2 \} \end{aligned}$$

$$\begin{aligned} 6) |-x| &= 6 \\ \frac{-x}{-1} &= \frac{\pm 6}{-1} \\ x &= \mp 6 \quad \{ \pm 6 \} \end{aligned}$$

$$10) |x| = -10 \quad \emptyset$$

$$\begin{aligned} 14) |x+5| &= 2 \\ x+5 &= \pm 2 \\ \frac{x+5}{-5} &= \frac{\pm 2}{-5} \\ x &= -5 \pm 2 \\ &= -5+2 \text{ or } -5-2 \\ \boxed{\{-3, -7\}} \end{aligned}$$

$$\begin{aligned} 18) |x-7| &= 0 \\ x-7 &= \pm 0 \\ \frac{x-7}{+7} &= \frac{\pm 0}{+7} \\ x &= 7 \pm 0 \\ \{ 7 \} \end{aligned}$$

$$\begin{aligned} 28) |x-9| - 3 &= 2 \\ \frac{x-9}{+3} &= \frac{\pm 5}{+3} \\ |x-9| &= 5 \\ x-9 &= \pm 5 \\ \frac{x-9}{+9} &= \frac{\pm 5}{+9} \\ x &= 9 \pm 5 \\ \{ 14, 4 \} \end{aligned}$$

$$\begin{aligned} 38) |4x+3| - 2 &= 7 \\ \frac{4x+3}{+2} &= \frac{\pm 9}{+2} \\ |4x+3| &= 9 \\ 4x+3 &= \pm 9 \\ \frac{4x}{-3} &= \frac{\pm 9}{-3} \\ 4x &= -3 \pm 9 \\ \frac{4x}{4} &= \frac{6}{4} \text{ or } \frac{4x}{4} = \frac{-12}{4} \\ \{ \frac{3}{2}, -3 \} \end{aligned}$$

