

Algebra II
Section 2.8
Solving Absolute Value Equations

① $n \leq 68$
 $\{n | n \leq 68\}$
 $(-\infty, 68]$

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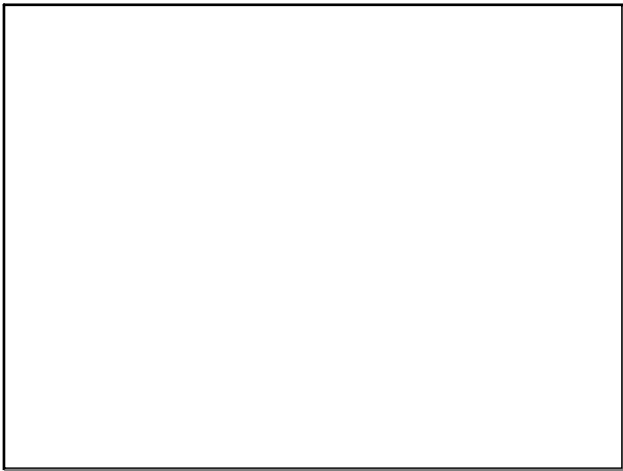
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② $x > -9$ $\{x x > -9\}$ $(-9, \infty)$ 	③ $n \leq 1$ $\{n n \leq 1\}$ $(-\infty, 1]$
④ $m > 16$ $\{m m > 16\}$ $(16, \infty)$ 	⑥ $a < -14$ $\{a a < -14\}$ $(-\infty, -14)$
⑤ $v \leq 15$ $\{v v \leq 15\}$ $(-\infty, 15]$ 	⑦ $n > 10$ $\{n n > 10\}$ $(10, \infty)$
⑧ $x < -18$ $\{x x < -18\}$ $(-\infty, -18)$ 	⑨ $k \leq -9$ $\{k k \leq -9\}$ $(-\infty, -9]$
⑩ $n \geq -19$ $\{n n \geq -19\}$ $[-19, \infty)$ 	⑪ $n \geq 8$ $\{n n \geq 8\}$ $[8, \infty)$
⑫ $x < 7$ $\{x x < 7\}$ $(-\infty, 7)$ 	

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$10 \cdot 2 \geq \frac{v+5}{10} \cdot 10$ $20 \geq \frac{v+5}{-5}$ $15 \geq v$ $v \leq 15$ $(-\infty, 15]$	$10(k-8) \leq -170$ $10k - 80 \leq -170$ $\frac{10k}{10} \leq \frac{-90}{10}$ $\{k k \leq -9\}$ $(-\infty, -9]$
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Bell Ringer:

Solve and graph

Write answers in

$$7(x+1) \leq 10(x-7)$$

algebraic

set

interval

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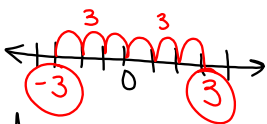
What does absolute value mean? Distance from zero

ALWAYS POSITIVE

$$|x| = 3$$

$$|-5| = 5$$

$$|10| = 10$$



ALWAYS TWO SOLUTIONS

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Solve and graph.

1. $|x| = 12$

$$x = 12 \quad x = -12$$

$$\{12, -12\}$$

2. $|x+12| = 7$

$$\begin{array}{r} x+12 = 7 \\ -12 \quad -12 \\ \hline x = -5 \end{array}$$

$$\begin{array}{r} x+12 = -7 \\ -12 \quad -12 \\ \hline x = -19 \end{array}$$

3. $|4x+12| = 48$

$$\begin{array}{r} 4x+12 = 48 \\ -12 \quad -12 \\ \hline 4x = 36 \\ \frac{4x}{4} = \frac{36}{4} \quad x = 9 \end{array}$$

$$\begin{array}{r} 4x+12 = -48 \\ -12 \quad -12 \\ \hline 4x = -60 \\ \frac{4x}{4} = \frac{-60}{4} \quad x = -15 \end{array}$$

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Solve and Graph.

$$4. \frac{|x|}{4} - 6 = -2$$

$$\frac{|x|}{4} = 4$$

$$4 \cdot \frac{|x|}{4} = 4 \cdot 4 \quad \frac{|x|}{4} = -4 \cdot 4$$

$$x = 16 \quad x = -16$$

$$5. \frac{2|x-1|}{2} = \frac{-6}{2}$$

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

No Solution

Conclusion

1. What does absolute value mean?

Distance from zero

2. How many solutions does an absolute value equation have?

2

3. How do we solve an absolute value equation?

2 equations

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Assignment

Absolute Value Wkst

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