12-5 Solving Inequalities by Adding and Subtracting

p. 696 1-31-18

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When you add or subtract the same number on both sides of an inequality, the resulting statement will still be true.

$$\begin{array}{r} -2 < 5 \\ +7 \quad +7 \\ \hline 5 < 12 \end{array}$$

You can find solution sets of inequalities the same way you find solutions of equations, by isolating the variable.

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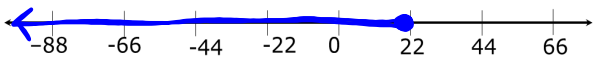
Solve. Then graph the solution set on a number line.

$n - 7 \leq 15$

$+7 \quad +7$

$n \leq 22$

Solution set



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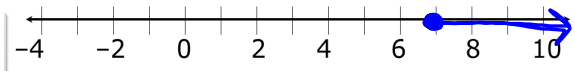
Solve. Then graph the solution set on a number line.

$a - 10 \geq -3$

$+10 \quad +10$

$a \geq 7$



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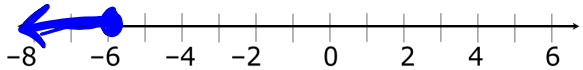
Solve. Then graph the solution set on a number line.

$d - 12 \leq -18$

$+12 \quad +12$

$d \leq -6$



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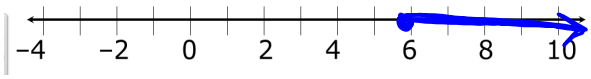
Solve. Then graph the solution set on a number line.

$b - 14 \geq -8$

$+14 \quad +14$

$b \geq 6$



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You can check the solution to an inequality is true by choosing any number in the solution set and substituting it into the original inequality.

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Solve. Check each answer.

$d + 11 > 6$

$-11 \quad -11$

$d > -5$

$0 + 11 > 6$

$11 > 6$ ✓

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Solve. Check your answer.

$b + 12 \leq 19$

$-12 \quad -12$

$b \leq 7$

$0 + 12 \leq 19$ ✓

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Solve. Check your answer.

$a + 15 \leq 20$

$-15 \quad -15$

$a \leq 5$

$0 + 15 \leq 20$ ✓

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