

Algebra 1

Chapter 3

Section 3-2

May 13-10:02 PM

Equivalent Inequalities

Recall:

Equivalent equations are equations that have the same solution.

A similar concept is equivalent inequalities. Those have the same solution set.

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Review: Solving Equations

Use addition or subtraction

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

$$\begin{array}{r} 11 + y = 2 \\ -11 \quad -11 \\ \hline y = -9 \end{array}$$

$$\begin{array}{r} j - 10 = 1 \\ +10 \quad +10 \\ \hline j = 11 \end{array}$$

$$\begin{array}{r} -11.7 + m = 0 \\ +11.7 \quad +11.7 \\ \hline m = 11.7 \end{array}$$

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Review: Solving Equations

Use addition or subtraction

$$\begin{array}{r} k - 13 > 19 \\ +13 \quad +13 \\ \hline k > 32 \end{array}$$

$$\begin{array}{r} 11 + n \leq 20 \\ -11 \quad -11 \\ \hline n \leq 9 \end{array}$$

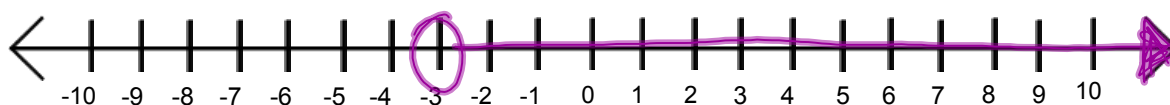
$$\begin{array}{r} -100 < -10 + h \\ +10 \quad +10 \\ \hline -90 < h \\ h > -90 \end{array}$$

$$\begin{array}{r} \frac{2}{3} + m \geq 6 \\ -\frac{2}{3} \quad -\frac{2}{3} \\ \hline m \geq \frac{16}{3} \end{array}$$

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Solve the inequality and graph the solution.

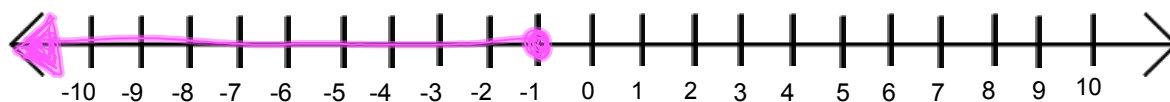
$$x - 15 > -18$$
$$+15 \quad +15$$
$$x > -3$$



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Solve the inequality and graph the solution.

$$1 \geq x + 2$$
$$-2 \quad -2$$
$$-1 \geq x \rightarrow x \leq -1$$

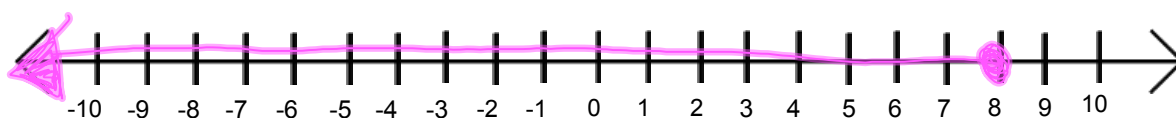


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Solve the inequality and graph the solution.

$$\underline{14x} + 14 - \underline{13x} \leq 22$$

$$\begin{array}{r} x + 14 \leq 22 \\ -14 \quad -14 \\ \hline x \leq 8 \end{array}$$



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Writing an Inequality

Two baseball teams are tied 4-4 in extra innings. If the game can not end in a tie, write an inequality that states how many runs "r" will be scored in this game.

$$\begin{array}{l} 9 \leq r \\ r \geq 9 \end{array}$$

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Writing and Solving an Inequality

You have to sell at least 80 raffle ticket for your school's fundraiser. You have sold 56 tickets so far. Write an inequality identifying how many more tickets "t" you will need to sell. Then solve.

$$\begin{array}{r} t + 56 \geq 80 \\ -56 \quad -56 \\ \hline t \geq 24 \end{array}$$

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Writing and Solving an Inequality

Sue's family orders four pizzas for lunch. Each pizza has six slices. Her dad eats four slices and her mom eats two slices. Her competitive brother Bubba is going to eat exactly six more slices than Sue, and baby Monica eats all the toppings off of mom's pizza slices. Write and solve an inequality that tells how many slices "s" that Sue can eat.

$$\underline{4} + \underline{2} + (\underline{6} + s) + \underline{s} \leq \underline{4 \cdot 6}$$

$$\cancel{12} + 2s \leq 24$$

$$\begin{array}{r} 2s \leq 12 \\ \hline 2 \quad 2 \end{array}$$

$$s \leq 6$$

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