

Starter 25 SEP 2018

Solve the inequality and graph the solution set.

$$13 - 4x \leq 1 - x$$

Handwritten work:

$$\begin{aligned} 13 - 4x &\leq 1 - x \\ +4x & \quad +4x \\ 13 &\leq 1 + 3x \\ -13 & \quad -13 \\ -3x &\leq -12 \\ \div -3 & \quad \div -3 \\ x &\geq 4 \end{aligned}$$

Notes: + simplify, get x's together, get x by itself, 3. Undo +

SOLVING INEQUALITIES USING MULTIPLICATION AND DIVISION

- Multiplying/Dividing by a Negative Number $-2x \leq 10$
 - Solve _____ . Graph the solution.

- Solve $\frac{x}{3} \leq -4$. Graph the solution.

SOLVING TWO - STEP INEQUALITIES

Using More Than Two Step

- Solve $7 + 6a > 19$

$$\begin{aligned} 7 + 6a &> 19 \\ -7 & \quad -7 \\ 6a &> 12 \\ \div 6 & \quad \div 6 \\ a &> 2 \end{aligned}$$
- Solve $-3x - 4 \leq 14$

$$\begin{aligned} -3x - 4 &\leq 14 \\ +4 & \quad +4 \\ -3x &\leq 18 \\ \div -3 & \quad \div -3 \\ x &\geq -6 \end{aligned}$$

Solving Two-Step Inequalities

- Solve $2(t + 2) - 3t \geq -1$

$$\begin{aligned} 2(t + 2) - 3t &\geq -1 \\ 2t + 4 - 3t &\geq -1 \\ -1t + 4 &\geq -1 \\ -4 & \quad -4 \\ -1t &\geq -5 \\ \div -1 & \quad \div -1 \\ t &\leq 5 \end{aligned}$$
- Solve $4p + 2(p + 7) < 8$

$$\begin{aligned} 4p + 2(p + 7) &< 8 \\ 4p + 2p + 14 &< 8 \\ 6p + 14 &< 8 \\ -14 & \quad -14 \\ 6p &< -6 \\ \div 6 & \quad \div 6 \\ p &< -1 \end{aligned}$$

o Solve $15 \leq 5 - 2(4m + 7)$ o Solve $8 > 3(5 - b) + 2$

Worksheet Multi-Step Inequalities
Do the Odd numbers.

Define Algebra 1
Multi-Step Inequalities
Solve each inequality and graph its solution.

1) $x + 10 < 20$ 2) $6x + 2 < 4x + 14$

3) $x - 9 > -15$ 4) $18 \geq 18 + 4x$

5) $x - 2 < 2x + 3$ 6) $-4 < 4(6x + 4) - 111$

7) $6 - 6(6x - 7) \geq 112$ 8) $-15(2 - 4(6x - 7))$

9) $147 < 4 + 7(2 - 7)$ 10) $9(6 - 3(6 - 7) \geq 127$

11) $-6(4 + 2) - 18 < -2(4 + 7)$ 12) $-4 - 6x - 4 - 41 = 7x$

2) $6x + 2 + 6x < 14$

$$\begin{array}{r|l} \boxed{6x} + 2 + \boxed{6x} < 14 \\ 12x + \cancel{2} < \cancel{14} \\ \underline{-2} & \underline{-2} \\ 12x < 12 \\ \underline{12} & \underline{12} \\ x < 1 \end{array}$$

✓ Simplify
✓ X's together
Solve for X
Undo +
Undo x

$x < 1$

6) $-3 - 6(4x + 6) > -111$ *→ simplify*

$$\begin{array}{r|l} -3 - 6(4x + 6) > -111 \\ \boxed{-3} - 24x - \boxed{36} > -111 \\ -39 - 24x > -111 \\ \underline{+39} & \underline{+39} \\ 0 - 24x > -72 \\ \underline{-24} & \underline{-24} \\ x < 3 \end{array}$$

$x < 3$

$$-4 > x$$
$$x < -4$$