

Section 1.2 Linear Inequalities - Secretary Boss



Directions: If you are the boss, tell your secretary how to solve the problem. If you are the secretary, you must write down what your boss tells you to. Remember, it is your job to make your boss look good so if he/she has an incorrect answer, politely suggest how to correctly solve. Once the problem is completed, the boss must sign off on the problem. Switch roles!

Solve each inequality. Write solutions in interval and inequality notation and graph solutions.

1) $4(x + 5) - 13 \leq 9x - 11$

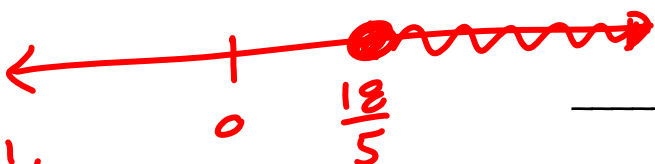
$$4x + 20 - 13 \leq 9x - 11$$

$$4x + 7 \leq 9x - 11$$

$$18 \leq 5x$$

$$\frac{18}{5} \leq x$$

$$\boxed{x \geq \frac{18}{5}} \text{ or } \boxed{\left[\frac{18}{5}, \infty \right)}$$



2) $\frac{x+3}{7} - 2 \geq \frac{2(x-5)}{3} + 1$

$$3(x+3) - 42 \geq 14(x-5) + 21$$

$$3x + 9 - 42 \geq 14x - 70 + 21$$

$$3x - 33 \geq 14x - 49$$

$$\frac{16}{11} \geq x$$

$$\boxed{x \leq \frac{16}{11}} \text{ or } \boxed{\left(-\infty, \frac{16}{11} \right]}$$



3) $3(x - 6) + 14 > 8x + 12$

4) $1 - \frac{2(x+3)}{6} \leq \frac{x-11}{5} + 2$

$$5) -18 < 9\left[\frac{1}{3}(6x - 2(x-1))\right] \leq 18$$

$$6) -6 \leq 8\left[2x - \frac{1}{4}(6x+5)\right] < 20$$

$$-18 < 9\left[\frac{1}{3}(4x+2)\right] \leq 18$$
$$9\left[\frac{4}{3}x + \frac{2}{3}\right]$$

$$-18 < 12x + 6 \leq 18$$

$$-24 < 12x \leq 12$$

$$\boxed{-2 < x \leq 1} \text{ or } (-2, 1]$$



$$7) -5x + 2[x - 3(2 + 3(x-1))] > 12x - [3(x-2)]$$

$$8) 2x - [3x + (x-2)] < 11x - (5x - 11)$$

$$\underbrace{\underbrace{3x-1}}_{3-8x}$$

$$-5x + 2(3-8x) > 12x - 3x + 6$$

$$-5x + 6 - 16x > 9x + 6$$

$$-21x + 6 > 9x + 6$$

$$-30x > 0$$

$$\boxed{x < 0} \text{ or } (-\infty, 0)$$

