11.4 Solving, Writing and Graphing Two-Step Inequalities p. 488

* Simplify each side of the inequality first (d.p. or clt)
* add or subtract the constant on the same side as the variable
* multiply or divide to isolate the variable

[remember to flip/reverse the inequality symbol if x or ÷ by a negative number]

1) $2(k-5) < 6$

$2k - 10 < 6$

$+10 \quad +10$

$2k < 16$

$\boxed{k < 8}$

2) $5x + 4 \geq -14$

$+4 \quad +4$

$\frac{5x}{5} \geq \frac{-10}{5}$

$\boxed{x \geq -2}$

3) $-4 - 3d \leq -9$

$-4 \quad -4$

$\frac{-3d}{-3} \leq \frac{-13}{-3}$

$\boxed{d \geq \frac{13}{3}}$

4) $-6y + 7 > -5$

$+7 \quad +7$

$\frac{-6y}{-6} > \frac{2}{-6}$

$\boxed{y < -\frac{1}{3}}$

5) $-3 \leq 0.5(8+y)$

$-3 \leq 4 + 0.5y$

$-4 \quad -4$

$\frac{-7}{0.5} \leq \frac{0.5y}{0.5}$

$-\frac{70}{5} \leq y$

$\boxed{-14 \leq y}$

6) $20 \geq -3.2(c - 4.3)$

$20 \geq -3.2c + 13.76$

$-13.76 \quad -13.76$

$\frac{6.24}{-3.2} \geq \frac{-3.2c}{-3.2}$

$\boxed{-1.95 \leq c}$

7) $9N - 4N + 4 \geq 36 - 12$

$5N + 4 \geq 24$

$-4 \quad -4$

$\frac{5N}{5} \geq \frac{20}{5}$

$\boxed{N \geq 4}$

8) $3.6 - 0.24n < 1.2$

$-3.6 \qquad -3.6$

$\frac{-0.24n}{-0.24} \textcircled{<} \frac{-2.4}{-0.24}$

$\boxed{n > 10}$

$24 \overline{)2.40}$ $\quad 10.$

9) $-\frac{1}{4} \leq 4k + \frac{7}{4}$

$-\frac{7}{4} \qquad -\frac{7}{4}$

$-\frac{8}{4} \leq 4k$

$\frac{-2}{4} \leq \frac{4k}{4}$

$\boxed{-\frac{1}{2} \leq k}$

10) $-5(m-2) > 30$

$-5m + 10 > 30$

$-10 \quad -10$

$-5m \textcircled{>} 20$

$\boxed{m < -4}$

11) $12x - 5x - 4 \geq 60 - 8$

$7x - 4 \geq 52$

$+4 \quad +4$

$\frac{7x}{7} \geq \frac{56}{7}$

$\boxed{x \geq 8}$