

Homework 4.2

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Solve each inequality.

1) $6m + 2(6m - 8) < -40 + 6m$

$$\begin{array}{r} 6m + 12m - 16 < -40 + 6m \\ 18m - 16 < -40 + 6m \\ \underline{-6m} \quad \quad \quad \underline{-6m} \\ 12m - 16 < -40 \\ \underline{+16} \quad \underline{+16} \end{array} \quad \begin{array}{r} 12m < -24 \\ \underline{12} \quad \underline{12} \\ m < -2 \end{array}$$

3) $-2(7n - 8) + 5n < -3n - 2(-5n - 8)$

$$\begin{array}{r} -14n + 16 + 5n < -3n + 10n + 16 \\ -9n + 16 < 7n + 16 \\ \underline{+9n} \quad \quad \quad \underline{+9n} \\ 16 < 16n + 16 \\ \underline{-16} \quad \quad \underline{-16} \end{array} \quad \begin{array}{r} 0 < 16n \\ \underline{16} \quad \underline{16} \\ 0 < n \text{ or} \\ n > 0 \end{array}$$

Solve each compound inequality.

5) $-21 \leq -4n - 1 < 27$

$$\begin{array}{r} -21 \leq -4n - 1 \text{ and } -4n - 1 < 27 \\ \underline{+1} \quad \quad \underline{+1} \quad \quad \quad \underline{+1} \quad \underline{+1} \\ -20 \leq -4n \quad \quad \quad -4n < 28 \\ \underline{-4} \quad \quad \underline{-4} \quad \quad \quad \underline{-4} \quad \underline{-4} \\ 5 \geq n \quad \quad \text{or} \quad \quad n > -7 \end{array} \quad \begin{array}{r} \text{or} \\ -7 < n \leq 5 \end{array}$$

Simplify each expression.

7) $6p - 2(-8p - 6)$

$$6p + 16p + 12 \\ 22p + 12$$

2) $-3(4n + 6) \leq -6n - 12$

$$\begin{array}{r} -12n - 18 \leq -6n - 12 \\ \underline{+12n} \quad \quad \underline{+12n} \\ -18 \leq 6n - 12 \\ \underline{+12} \quad \quad \underline{+12} \\ -6 \leq 6n \end{array} \quad \begin{array}{r} -6 \leq 6n \\ \underline{6} \quad \underline{6} \\ -1 \leq n \text{ or} \\ n \geq -1 \end{array}$$

4) $-5(b - 1) \leq -4(b - 4)$

$$\begin{array}{r} -5b + 5 \leq -4b + 16 \\ \underline{+5b} \quad \quad \underline{+5b} \\ 5 \leq b + 16 \\ \underline{-16} \quad \quad \underline{-16} \\ -11 \leq b \text{ or } b \geq -11 \end{array}$$

6) $-24 \leq -6 + 9m \leq 57$

$$\begin{array}{r} -24 \leq -6 + 9m \text{ and } -6 + 9m \leq 57 \\ \underline{+6} \quad \underline{+6} \quad \quad \quad \underline{+6} \quad \quad \underline{+6} \\ -18 \leq 9m \quad \quad \quad 9m \leq 63 \\ \underline{9} \quad \quad \underline{9} \quad \quad \quad \underline{9} \quad \quad \underline{9} \\ -2 \leq m \quad \quad \quad m \leq 7 \end{array} \quad \begin{array}{r} -2 \leq m \leq 7 \end{array}$$

8) $-6(x - 4) + 3$

$$-6x + 24 + 3 \\ -6x + 27$$

Solve each equation.

9) $-20 - 4b = 6(1 - 5b)$

$$\begin{array}{r} -20 - 4b = 6 - 30b \\ \underline{+30b} \quad \underline{+30b} \\ -20 + 26b = 6 \\ \underline{+20} \quad \quad \underline{+20} \\ 26b = 26 \\ \underline{26} \quad \underline{26} \\ b = 1 \end{array}$$

10) $2n - 8(2n - 7) = -20 + 5n$

$$\begin{array}{r} 2n - 16n + 56 = -20 + 5n \\ -14n + 56 = -20 + 5n \\ \underline{+14n} \quad \quad \quad \underline{+14n} \\ 56 = -20 + 19n \\ \underline{+20} \quad \underline{+20} \\ 76 = 19n \\ \underline{19} \quad \underline{19} \\ 4 = n \end{array}$$