

Homework 4.1

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Solve each inequality.

1) $8(2p - 1) < -8p - 8$

$$\begin{array}{r} 16p - 8 < -8p - 8 \\ +8p \quad +8p \\ \hline 24p - 8 < -8 \\ +8 \quad +8 \\ \hline 24p < 0 \end{array}$$

$$\frac{24p}{24} < \frac{0}{24}$$

$p < 0$

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

$$\begin{array}{r} 7x + 10x + 4 > 14x - 2 \\ 17x + 4 > 14x - 2 \\ -14x \quad -14x \\ \hline 3x + 4 > -2 \\ -4 \quad -4 \\ \hline x > -2 \end{array}$$

$$\frac{3x}{3} > \frac{-6}{3}$$

$x > -2$

Solve each compound inequality.

5) $-7 \leq x - 8 \leq -3$

$$\begin{array}{r} -7 \leq x - 8 \quad \text{and} \quad x - 8 \leq -3 \\ +8 \quad +8 \\ \hline 1 \leq x \quad x \leq 5 \\ 1 \leq x \leq 5 \end{array}$$

Simplify each expression.

7) $-8(1 + b) + 4b$

$$\begin{array}{r} -8 - 8b + 4b \\ -8 - 4b \end{array}$$

2) $5(1 - 5k) \leq 39 - 8k$

$$\begin{array}{r} 5 - 25k \leq 39 - 8k \\ +25k \quad +25k \\ \hline 5 \leq 39 + 17k \\ -39 \quad -39 \\ \hline -34 \leq 17k \end{array}$$

$$\frac{-34}{17} \leq \frac{17k}{17}$$

$$\begin{array}{l} -2 \leq k \\ \text{or} \\ k \geq -2 \end{array}$$

4) $-6(7 + 7b) < -5b + 3(5 - 6b)$

$$\begin{array}{r} -42 - 42b < -5b + 15 - 18b \\ -42 - 42b < -23b + 15 \\ +42b \quad +42b \\ \hline -42 < +19b + 15 \\ -15 \quad -15 \\ \hline -57 < 19b \end{array}$$

$$\begin{array}{l} -57 < 19b \\ \hline 19 \quad 19 \\ -3 < b \\ \text{or} \\ b > -3 \end{array}$$

6) $6 > -n + 5 > 1$

$$\begin{array}{r} 6 > -n + 5 \quad \text{and} \quad -n + 5 > 1 \\ -5 \quad -5 \quad \hline -1 > -n \\ -1 \downarrow -1 \\ -1 < n \end{array}$$

$-1 < n < 4$

$$\begin{array}{r} -5 - 5 \\ -n > -4 \\ -1 \downarrow -1 \\ n < 4 \end{array}$$

8) $8 + 5(v + 5)$

$$\begin{array}{r} 8 + 5v + 25 \\ 5v + 33 \end{array}$$

Solve each equation.

9) $34 - 2n = -4(8 + 6n)$

$$\begin{array}{r} 34 - 2n = -32 - 24n \\ +24n \quad +24n \\ \hline 34 + 22n = -32 \\ -34 \quad -34 \\ \hline 22n = -66 \\ 22 \quad 22 \\ \hline n = -3 \end{array}$$

10) $5(1 - 4x) - x = 33 - 7x$

$$\begin{array}{r} 5 - 20x - x = 33 - 7x \\ -21x + 5 = 33 - 7x \\ +21x \quad +21x \\ \hline 5 = 33 + 14x \\ -33 \quad -33 \\ \hline -28 = 14x \\ 14 \quad 14 \\ \hline -2 = x \end{array}$$