

**Homework 4.3**

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**Solve each inequality.**

$$\begin{aligned} 1) -(b+6) &< -16 - 6b \\ -b - 6 &< -16 - 6b \\ +6b \quad +6b & \\ \hline 5b - 6 &< -16 \\ +6 \quad +6 & \\ \hline 5b &< -10 \end{aligned}$$

$$\begin{array}{r} 5b < -10 \\ \hline 5 \quad 5 \\ b < -2 \end{array}$$

$$\begin{aligned} 3) -7(2x-2) &< -7(x+1)-7 \\ -14x + 14 &< -7x - 7 - 7 \\ -14x + 14 &< -7x - 14 \\ +14x \quad +14x & \\ \hline 14 &< 7x - 14 \end{aligned}$$

$$\begin{array}{r} 14 < 7x - 14 \\ +14 \quad +14 \\ \hline 28 < 7x \\ 7 \quad 7 \\ 4 < x \text{ or } x > 4 \end{array}$$

**Solve each compound inequality.**

5)  $34 \leq 10 - 6v < 52$

$$\begin{array}{rcl} 34 \leq 10 - 6v & 10 - 6v < 52 \\ -10 \quad -10 & -10 \quad -10 \\ \hline 24 \leq -6v & -6v < 42 \\ -6 \quad -6 & -6 \quad -6 \\ \hline -4 \geq v & v > -7 \end{array}$$

**Simplify each expression.**

7)  $-7(4x+5) - 6x$

$$\begin{aligned} &-28x - 35 - 6x \\ &-34x - 35 \end{aligned}$$

$$\begin{aligned} 2) 18 - 8n &> 6(4n+3) + 7n & 18 > 39n + 18 \\ 18 - 8n &> 24n + 18 + 7n & \underline{-18 \quad -18} \\ 18 - 8n &> 31n + 18 & \frac{0 > 39n}{39 \quad 39} \\ +8n \quad +8n & \\ \hline 18 &> 39n + 18 & 0 > n \text{ or } n < 0 \end{aligned}$$

4)  $-5n - 7(-6 - 5n) > 4(8n + 3)$

$$\begin{array}{rcl} -5n + 42 + 35n &> 32n + 12 & \frac{30 > 2n}{2 \quad 2} \\ 42 + 30n &> 32n + 12 & \\ -30n \quad -30n & \\ \hline 42 &> 2n + 12 & \\ -12 \quad -12 & \\ \hline 30 &> 2n & \\ n < 15 & \end{array}$$

6)  $2 \leq 10x + 2 \leq 62$

$$\begin{array}{rcl} 2 \leq 10x + 2 & 10x + 2 \leq 62 \\ -2 \quad -2 & -2 \quad -2 \\ \hline 0 \leq 10x & \frac{10x \leq 60}{10 \quad 10} \\ 0 \leq x & x \leq 6 \\ & 0 \leq x \leq 6 \end{array}$$

8)  $7 - 3(-a+4)$

$$\begin{aligned} &7 + 3a - 12 \\ &3a - 5 \end{aligned}$$

**Solve each equation.**

9)  $37 - 4k = 3 + 2(7k - 1)$

$$\begin{array}{rcl} 37 - 4k &= 3 + 14k - 2 \\ -4k + 37 &= 14k + 1 \\ +4k \quad +4k & \\ \hline 37 &= 18k + 1 \\ -1 \quad -1 & \\ \hline 36 &= 18k \\ 18 \quad 18 & \\ \hline 2 &= k \end{array}$$

10)  $p - 5 = -(p + 7)$

$$\begin{array}{rcl} p - 5 &= -p - 7 \\ +p \quad +p & \\ \hline 2p - 5 &= -7 \\ +5 \quad +5 & \\ \hline \frac{2p}{2} &= \frac{-2}{2} \\ p &= -1 \end{array}$$