

## Inequalities with the Distributive Property Video Guide

Solve each inequality.

1)  $-50 + 10k > 5(5k + 8)$

$$-50 + 10k > 25k + 40$$

$$\begin{array}{r} -25k \\ -25k \end{array}$$

$$\hline -50 - 15k > 40$$

$$\begin{array}{r} +50 \\ +50 \end{array}$$

$$\hline -15k > 90$$

$$\begin{array}{r} -15 \\ -15 \end{array}$$

$$\hline k < -6$$

2)  $10(x + 8) > 20 + 4x$

$$10x + 80 > 20 + 4x$$

$$\begin{array}{r} -4x \\ -4x \end{array}$$

$$\hline 6x + 80 > 20$$

$$\begin{array}{r} -80 \\ -80 \end{array}$$

$$\hline 6x > -60$$

$$\begin{array}{r} 6 \\ 6 \end{array}$$

$$\hline x > -10$$

3)  $5(2 + 4r) < 2(10 + 9r)$

$$10 + 20r < 20 + 18r$$

$$\begin{array}{r} -18r \\ -18r \end{array}$$

$$\hline 10 + 2r < 20$$

$$\begin{array}{r} -10 \\ -10 \end{array}$$

$$\hline 2r < 10$$

$$\begin{array}{r} 2 \\ 2 \end{array}$$

$$\hline r < 5$$

4)  $-6(b - 2) < -5(b + 1)$

$$-6b + 12 < -5b - 1$$

$$\begin{array}{r} +5b \\ +5b \end{array}$$

$$\hline -1b + 12 < -1$$

$$\begin{array}{r} -12 \\ -12 \end{array}$$

$$\hline -1b < -13$$

$$\begin{array}{r} -1 \\ -1 \end{array}$$

$$\hline b > 13$$

5)  $2(-8n - 10) \leq -41 + 5n$

$$-16n - 20 \leq -41 + 5n$$

$$\begin{array}{r} -5n \\ -5n \end{array}$$

$$\hline -21n - 20 \leq -41$$

$$\begin{array}{r} +20 \\ +20 \end{array}$$

$$\hline -21n \leq -21$$

$$\begin{array}{r} -21 \\ -21 \end{array}$$

$$\hline n \geq 1$$

6)  $-10(n - 1) < 3(-3n + 7)$

$$-10n + 10 < -9n + 21$$

$$\begin{array}{r} +9n \\ +9n \end{array}$$

$$\hline -1n + 10 < 21$$

$$\begin{array}{r} -10 \\ -10 \end{array}$$

$$\hline -1n < 11$$

$$\begin{array}{r} -1 \\ -1 \end{array}$$

$$\hline n > -11$$

$$7) \quad 4(-2 - 6x) \leq -4(10 + 2x)$$

$$\begin{array}{r} -8 - 24x \leq -40 - 8x \\ +8x \qquad \qquad +8x \end{array}$$

$$\begin{array}{r} -8 - 16x \leq -40 \\ +8 \qquad \qquad +8 \end{array}$$

$$\begin{array}{r} -16x \leq -32 \\ -16 \qquad -16 \end{array}$$

$$x \geq 2$$

$$8) \quad -7(5k + 8) \leq 5k + 24$$

$$\begin{array}{r} -35k - 56 \leq 5k + 24 \\ -5k \qquad \qquad -5k \end{array}$$

$$\begin{array}{r} -40k - 56 \leq 24 \\ +56 \qquad +56 \end{array}$$

$$\begin{array}{r} -40k \leq 80 \\ -40 \qquad -40 \end{array}$$

$$k > -2$$

$$9) \quad 4r - 36 \leq -2(r - 6)$$

- A)  $r \geq -31$       B)  $r \geq -1$   
 C)  $r \leq -1$       **D)  $r \leq 8$**

$$4r - 36 \leq -2(r - 6)$$

$$4r - 36 \leq -2r + 12$$

$$\begin{array}{r} +2r \qquad \qquad +2r \end{array}$$

$$\begin{array}{r} 6r - 36 \leq 12 \\ +36 \qquad +36 \end{array}$$

$$\begin{array}{r} 6r \leq 48 \\ 6 \qquad 6 \end{array}$$

$$r \leq 8$$

$$10) \quad 3(8b - 7) \leq 35 + 10b$$

- A)  $b \geq -2$       B)  $b \leq -2$   
 C)  $b \geq -20$       **D)  $b \leq 4$**

$$3(8b - 7) \leq 35 + 10b$$

$$24b - 21 \leq 35 + 10b$$

$$\begin{array}{r} -10b \qquad \qquad -10b \end{array}$$

$$\begin{array}{r} 14b - 21 \leq 35 \\ +21 \qquad +21 \end{array}$$

$$\begin{array}{r} 14b \leq 56 \\ 14 \qquad 14 \end{array}$$

$$b \leq 4$$

$$11) \quad -4(v - 1) \leq -8(-3 - 2v)$$

- A)  $v \leq -34$       **B)  $v \geq -1$**   
 C)  $v \geq -36$       D)  $v \leq -36$

$$-4(v - 1) \leq -8(-3 - 2v)$$

$$-4v + 4 \leq 24 + 16v$$

$$\begin{array}{r} -16v \qquad \qquad -16v \end{array}$$

$$\begin{array}{r} -20v + 4 \leq 24 \\ -4 \qquad -4 \end{array}$$

$$\begin{array}{r} -20v \leq 20 \\ -20 \qquad -20 \end{array}$$

$$v \geq -1$$

$$12) \quad 5(k - 3) \leq 5(1 + 2k)$$

- A)  $k \geq -45$       B)  $k \geq 10$   
**C)  $k \geq -4$**       D)  $k \leq -45$

$$5(k - 3) \leq 5(1 + 2k)$$

$$5k - 15 \leq 5 + 10k$$

$$\begin{array}{r} -10k \qquad \qquad -10k \end{array}$$

$$\begin{array}{r} -5k - 15 \leq 5 \\ +15 \qquad +15 \end{array}$$

$$\begin{array}{r} -5k \leq 20 \\ -5 \qquad -5 \end{array}$$

$$k \geq -4$$