

Multiply both sides by the LCM.

Key

Extra Practice Worksheet Lesson 6.5

Solve each inequality.

$$1) \left(-x - \frac{3}{4} - 2\right) \geq \frac{5}{12}$$

$$12(-x) + 12\left(-\frac{3}{4}\right) + 12(-2) \geq 12\left(\frac{5}{12}\right)$$

$$\begin{array}{r} -12x - 9 - 24 \geq 5 \\ -12x - 33 \geq 5 \\ \quad +33 \quad +33 \\ -12x \geq 38 \\ \quad -12 \quad -12 \\ x \leq -\frac{19}{6} \end{array}$$

$x \leq -\frac{19}{6}$

$$2) \left(-\frac{9}{4}v + \frac{5}{6} + \frac{5}{4}\right) > -\frac{61}{42}$$

$$84\left(-\frac{9}{4}v\right) + 84\left(\frac{5}{6}\right) + 84\left(\frac{5}{4}\right) > 84\left(-\frac{61}{42}\right)$$

$$\begin{array}{r} -189v + 70 + 105 > -122 \\ -189v + 175 > -122 \\ \quad -175 \quad -175 \\ -189v < -297 \\ \quad -189 \quad -189 \\ v < \frac{11}{7} \end{array}$$

$v < \frac{11}{7}$

$$3) \frac{141}{28} \leq \left(\frac{3}{7}x + \frac{5}{2} + 2\right)$$

$$28\left(\frac{141}{28}\right) \leq 28\left(\frac{3}{7}x\right) + 28\left(\frac{5}{2}\right) + 28(2)$$

$$\begin{array}{r} 141 \leq 12x + 70 + 56 \\ 141 \leq 12x + 126 \\ \quad -126 \quad -126 \\ 15 \leq 12x \\ \quad 12 \quad 12 \\ \frac{5}{4} \leq x \end{array}$$

$\frac{5}{4} \leq x$

$$4) \frac{5}{2} > \left(-5a + \frac{13}{4}a\right)$$

$$4\left(\frac{5}{2}\right) > 4(-5a) + 4\left(\frac{13}{4}a\right)$$

$$\begin{array}{r} 10 > -20a + 13a \\ \frac{10}{7} < \frac{-7a}{-7} \end{array}$$

$-\frac{10}{7} < a$

$$5) \left(\frac{136}{49}\right) \leq \left(-\frac{20}{7}x + \frac{3}{7}x\right)$$

$$49\left(\frac{136}{49}\right) \leq 49\left(-\frac{20}{7}x\right) + 49\left(\frac{3}{7}x\right)$$

$$\begin{array}{r} 136 \leq -140x + 21x \\ 136 \leq -119x \\ \quad -119 \quad -119 \\ \frac{136}{-119} \geq \frac{-119x}{-119} \\ \frac{-8}{7} \geq x \end{array}$$

$-\frac{8}{7} \geq x$

$$6) \frac{7}{2}m - \frac{23}{6} - \frac{3}{8}m > -\frac{39}{8}$$

$$24\left(\frac{7}{2}m\right) + 24\left(-\frac{23}{6}\right) + 24\left(-\frac{3}{8}m\right) > 24\left(-\frac{39}{8}\right)$$

$$\begin{array}{r} 84m - 92 - 9m > -117 \\ 75m - 92 + 92 > -117 + 92 \\ \frac{75m}{75} > \frac{-25}{75} \\ m > -\frac{1}{3} \end{array}$$

$m > -\frac{1}{3}$

$$7) \frac{15}{7}b + 8 - \frac{4}{3}b \geq \frac{521}{63}$$

$$63\left(\frac{15}{7}b\right) + 63(8) + 63\left(-\frac{4}{3}b\right) \geq 63\left(\frac{521}{63}\right)$$

$$\begin{array}{r} 135b + 504 - 84b \geq 521 \\ 51b + 504 \geq 521 \\ \quad -504 \quad -504 \\ 51b \geq 17 \\ \quad 51 \quad 51 \\ b \geq \frac{1}{3} \end{array}$$

$b \geq \frac{1}{3}$

$$8) -\frac{11}{4} < \left(\frac{1}{2}n + 1 - \frac{13}{6}n\right)$$

$$12\left(-\frac{11}{4}\right) < 12\left(\frac{1}{2}n\right) + 12(1) + 12\left(-\frac{13}{6}n\right)$$

$$\begin{array}{r} -33 < 6n + 12 - 26n \\ -33 - 12 < -20n + 12 - 12 \\ -45 > -20n \\ \quad -20 \quad -20 \\ \frac{-45}{-20} > \frac{-20n}{-20} \\ \frac{9}{4} > n \end{array}$$

$\frac{9}{4} > n$

$$9) \left(2n + \frac{3}{2}n\right) > 3$$

$$2(2n) + 2\left(\frac{3}{2}n\right) > 2(3)$$

$$\begin{array}{r} 4n + 3n > 6 \\ \frac{7n}{7} > \frac{6}{7} \\ n > \frac{6}{7} \end{array}$$

$n > \frac{6}{7}$

$$10) \left(x + \frac{11}{8} - 2\frac{2}{3}\right) < \frac{29}{24}$$

$$24(x) + 24\left(\frac{11}{8}\right) + 24\left(-\frac{8}{3}\right) < 24\left(\frac{29}{24}\right)$$

$$\begin{array}{r} 24x + 33 - 64 < 29 \\ 24x - 31 < 29 \\ \quad +31 \quad +31 \\ 24x < 60 \\ \quad 24 \quad 24 \\ x < \frac{5}{2} \end{array}$$

$x < \frac{5}{2}$