Intermediate Algebra Skill

Solving Linear Inequalities: Fractional Coefficients

Solve the linear inequalities:

1) $\frac{1}{2}x-5\geq\frac{1}{3}$

2) $\frac{2}{7}x+3<\frac{5}{14}$

3) $-\frac{4}{3}x+\frac{5}{6}<\frac{3}{2}$

4) $\frac{5}{2}-\frac{7}{6}x>\frac{5}{9}$

5) $\frac{2}{5}y+\frac{1}{3}\geq\frac{2}{3}y-\frac{1}{4}$

6) $-\frac{8}{3}y+\frac{3}{5}\leq-\frac{1}{3}y-\frac{7}{10}$

7) $\frac{1}{4}(2y-3)+\frac{3}{5}(y+1)<\frac{3}{2}(y+2)-\frac{1}{3}(y-2)$

8) $-\frac{1}{6}(3y-2)+\frac{5}{9}(y-3)>\frac{1}{3}(2y-1)-\frac{5}{12}(y+4)$

9) $1-\frac{2}{3}\left[w-\frac{1}{2}(w+2)\right]+\frac{3}{5}\left[-w+\frac{2}{3}(1-w)\right]\leq w+2$

10) $6-\frac{2}{5}\left[\frac{3}{2}w-\frac{1}{4}(w+4)\right]-\frac{4}{5}\left[-\frac{1}{4}+\frac{1}{8}(w-4)\right]\geq-2w-7$

Answers to Solving Linear Inequalities: Fractional Coefficients

1) $\left\{x \middle| x \geq \frac{32}{3}\right\};\left[\frac{32}{3},\infty\right)$

2) $\left\{x \middle| x < -\frac{37}{4}\right\};\left(-\infty,-\frac{37}{4}\right)$

3) $\left\{x \middle| x > -\frac{1}{2}\right\};\left(-\frac{1}{2},\infty\right)$

4) $\left\{x \middle| x < \frac{5}{3}\right\};\left(-\infty,\frac{5}{3}\right)$

5) $\left\{y \middle| y \leq \frac{35}{16}\right\};\left(-\infty,\frac{35}{16}\right]$

6) $\left\{y \middle| y \geq \frac{39}{70}\right\};\left[\frac{39}{70},\infty\right)$

7) $\left\{y \middle| y > -\frac{229}{4}\right\};\left(\frac{-229}{4},\infty\right)$

8) $\left\{y \middle| y < \frac{24}{7}\right\};\left(-\infty,\frac{24}{7}\right)$

9) $\left\{w \middle| w \geq \frac{1}{35}\right\};\left[\frac{1}{35},\infty\right)$

10) $\left\{w \middle| w \geq -10\right\};\left[-10,\infty\right)$