

Unit 6: Inequalities

Name: _____

Solving Inequalities with Fractions

Hour: _____

Key

Extra Practice Worksheet 6.5

$$1. x + \frac{1}{3}x + 1\frac{3}{7} < \frac{15}{14}$$

LCM = 42

$$\begin{aligned} \frac{4}{3}x + \frac{10}{7} &< \frac{15}{14} \\ \frac{4}{3}x(\frac{42}{1}) + \frac{10}{7}(\frac{42}{1}) &< \frac{15}{14}(\frac{42}{1}) \\ 56x + 60 &< 45 \\ 56x &< -15 \end{aligned}$$

$$8. k - \frac{13}{7} + k \leq -\frac{41}{7}$$

LCM = 7

$$\begin{aligned} 2k - \frac{13}{7} &\leq -\frac{41}{7} \\ 2k(\frac{7}{1}) - \frac{13}{7}(\frac{7}{1}) &\leq -\frac{41}{7}(\frac{7}{1}) \\ 14k - 13 &\leq -41 \\ 14k &\leq -28 \\ k &\leq -2 \end{aligned}$$

$$5. -2\frac{8}{9}d - \frac{2}{3} \geq -\frac{5}{6}$$

LCM = 18

$$\begin{aligned} -\frac{26}{9}d(\frac{18}{1}) - \frac{2}{3}(\frac{18}{1}) &\geq -\frac{5}{6}(\frac{18}{1}) \\ -52d &\geq -15 \\ -52d &\geq -\frac{3}{52} \\ d &\leq \frac{3}{52} \end{aligned}$$

$$7. -\frac{37}{20} > \frac{3}{2}n + \frac{11}{5}n$$

LCM = 20

$$\begin{aligned} -\frac{37}{20} &> \frac{3}{2}n(\frac{20}{1}) + \frac{11}{5}n(\frac{20}{1}) \\ -37 &> 30n + 44n \\ -37 &> \frac{74n}{74} \\ -\frac{1}{2} &> n \end{aligned}$$

$$2. -\frac{8}{9}m > \frac{64}{81}$$

$$\begin{aligned} -\frac{8}{9}m(\frac{81}{1}) &> \frac{64}{81}(\frac{81}{1}) \\ -72m &> 64 \\ m &< -\frac{8}{9} \end{aligned}$$

LCM = 81

$$4. -\frac{4}{5}n + 1 \geq -\frac{44}{55}$$

$$\begin{aligned} -\frac{4}{5}n(\frac{55}{1}) + 1(\frac{55}{1}) &\geq -\frac{44}{55}(\frac{55}{1}) \\ -44n + 55 &\geq -44 \\ -44n &\geq -99 \\ n &\leq \frac{9}{4} \end{aligned}$$

$$6. b - \frac{3}{8} \leq \frac{3}{4}$$

$$\begin{aligned} b(\frac{8}{1}) - \frac{3}{8}(\frac{8}{1}) &\leq \frac{3}{4}(\frac{8}{1}) \\ 8b - 3 &\leq 6 \\ 8b &\leq \frac{9}{8} \\ b &\leq \frac{9}{8} \end{aligned}$$

$$8. -\frac{4}{5}k - 3(k + \frac{2}{3}) > -\frac{4}{5}$$

$$\begin{aligned} -\frac{4}{5}k - 3k - 2 &> -\frac{4}{5} \\ -\frac{4}{5}k(\frac{5}{1}) - 3k(\frac{5}{1}) - 2(\frac{5}{1}) &> -\frac{4}{5}(\frac{5}{1}) \\ -4k - 15k - 10 &> -4 \\ -19k &> -4 \\ -19k &> \frac{6}{79} \end{aligned}$$

LCM = 5

K < -6/19