

Proportion and Inequalities Quiz Prep

$$\frac{2}{7} = \frac{x}{63-x}$$

Do These
in Notebook
first

$$-\frac{3}{2} \left| 1 - \frac{1}{3}a \right| = -\frac{1}{2}$$

$$\frac{2}{3}x - x + \frac{3}{2} < \frac{1}{3}(x+3) + \frac{1}{2}$$

$$\frac{2}{7} = \frac{x}{63-x}$$

Flip both
sides

$$\frac{7}{2} = \frac{63-x}{x}$$

Multiply both
sides by LCD

$$\cancel{7}x \cdot \frac{7}{\cancel{2}} = \frac{63-x}{x} \cdot \frac{\cancel{2}x}{\cancel{1}}$$

DCMAM

$$\begin{aligned} 7x &= 2(63-x) \\ 7x &= 126 - 2x \\ +2x & \quad +2x \\ \hline 9x &= 126 \\ \frac{9x}{9} &= \frac{126}{9} \\ x &= 14 \end{aligned}$$

Proportion and Inequalities Quiz Prep

Get Abs Val
by itself

Multiply
by reciprocal

Split to 2
equations

Clear Fractions:
Multiply every
term by LCD

$$-\frac{3}{2} \left| 1 - \frac{1}{3}a \right| = -\frac{1}{2}$$

$$-\frac{2}{3} \cdot -\frac{3}{2} \left| 1 - \frac{1}{3}a \right| = -\frac{1}{2} \cdot -\frac{2}{3}$$

$$\left| 1 - \frac{1}{3}a \right| = \frac{1}{3}$$

$$1 - \frac{1}{3}a = \frac{1}{3} \quad 1 - \frac{1}{3}a = -\frac{1}{3}$$

$$3(1) - 3\left(\frac{1}{3}a\right) = 3\left(\frac{1}{3}\right)$$

$$3(1) - 3\left(\frac{1}{3}a\right) = 3\left(-\frac{1}{3}\right)$$

$$\frac{3-a}{-3} = \frac{1}{-3}$$

$$\frac{3-a}{-3} = \frac{-1}{-3}$$

$$a = 2$$

$$a = 4$$

$$\{2, 4\}$$

Multiply each
term by LCD

$$\frac{2}{3}x - x + \frac{3}{2} < \frac{1}{3}(x+3) + \frac{1}{2}$$

$$2\left(\frac{2}{3}x\right) - 6(x) + 3\left(\frac{3}{2}\right) < 2\left(\frac{1}{3}(x+3)\right) + 3\left(\frac{1}{2}\right)$$

$$4x - 6x + 9 < 2(x+3) + 3$$

$$4x - 6x + 9 < 2x + 6 + 3$$

$$-2x + 9 < 2x + 9$$

$$\frac{-2x}{-2x} \quad \frac{-2x}{-2x}$$

$$\frac{-4x + 9 < 9}{-9 \quad -9}$$

$$\frac{-4x < 0}{-4 \quad -4}$$

$$x > 0$$

DCMAM

Flip neg. sign
if dividing by -