

2.1 Solving Equations With Fractions

*** Eliminate the fractions

↳ Multiply both sides of the equation by the LCD

*** Do not Rewrite the fractions

Examples:

$$1. \frac{x}{3} + \frac{x}{5} = \frac{8}{1}$$

$$\text{LCD} = 15 \quad 15 \left(\frac{x}{3} + \frac{x}{5} \right) = 15 \left(\frac{8}{1} \right)$$

$$\frac{15}{1} \left(\frac{x}{3} \right) + \frac{15}{1} \left(\frac{x}{5} \right) = \frac{15}{1} \left(\frac{8}{1} \right)$$

$$5x + 3x = 120$$

$$8x = 120$$

$$x = \frac{120}{8}$$

$$x = 15$$

$$2. \frac{1}{2}x - \frac{2}{7} = \frac{3}{14}$$

$$\frac{x}{2} - \frac{2}{7} = \frac{3}{14} \quad \text{LCD} = 14$$

$$14 \left(\frac{x}{2} - \frac{2}{7} \right) = 14 \left(\frac{3}{14} \right)$$

$$\frac{14}{1} \left(\frac{x}{2} \right) + \frac{14}{1} \left(-\frac{2}{7} \right) = \frac{14}{1} \left(\frac{3}{14} \right)$$

$$7x - 4 = 3$$

$$7x = 3 + 4$$

$$7x = 7$$

$$x = \frac{7}{7}$$

$$x = 1$$

$$3. \frac{1}{3}x - \frac{2}{3} = \frac{1}{7}x$$

$$\text{LCD} = 21 \quad \frac{x}{3} - \frac{2}{3} = \frac{x}{7}$$

$$21 \left(\frac{x}{3} - \frac{2}{3} \right) = 21 \left(\frac{x}{7} \right)$$

$$\frac{21}{1} \left(\frac{x}{3} \right) + \frac{21}{1} \left(-\frac{2}{3} \right) = \frac{21}{1} \left(\frac{x}{7} \right)$$

$$7x - 14 = 3x$$

$$-14 = 3x - 7x$$

$$-14 = -4x$$

$$\frac{-14}{-4} = x$$

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

$$4. \frac{a}{2} + \frac{a}{3} + \frac{a}{4} = \frac{26}{1}$$

$$\text{LCD} = 12 \quad 12 \left(\frac{a}{2} + \frac{a}{3} + \frac{a}{4} \right) = 12 \left(\frac{26}{1} \right)$$

$$\frac{12}{1} \left(\frac{a}{2} \right) + \frac{12}{1} \left(\frac{a}{3} \right) + \frac{12}{1} \left(\frac{a}{4} \right) = \frac{12}{1} \left(\frac{26}{1} \right)$$

$$6a + 4a + 3a = 312$$

$$13a = 312$$

$$a = \frac{312}{13}$$

$$a = 24$$

HOMEWORK

Worksheet HW 2.1 - Fraction Equations
Day 1