

Name: _____

Solving Equations - Worksheet #4

. Solve the following equations. Show all of your work.

a) $\frac{2m}{3} = 8$

LCD = 3

$$3\left(\frac{2m}{3}\right) = 8(3)$$

$$\frac{2m}{2} = \frac{24}{2}$$

$$m = 12$$

b) $\frac{r}{3} - \frac{r}{6} = 2$

LCD = 6

$$2\left(\frac{r}{3}\right) - \frac{r}{6} = 2(6)$$

$$2r - r = 12$$

$$r = 12$$

c) $\frac{2x}{3} - 3 = \frac{x}{4}$

LCD = 12

$$12\left(\frac{2x}{3}\right) - 12(3) = 12\left(\frac{x}{4}\right)$$

$$4(2x) - 36 = 3x$$

$$\begin{array}{r} 8x - 36 = 3x \\ -8x \quad -8x \end{array}$$

$$\frac{-36}{-5} = \frac{-5x}{-5}$$

$$\frac{36}{5} = x$$

e) $\frac{x}{2} + \frac{x}{3} - \frac{x}{4} = 9$

LCD = 12

$$12\left(\frac{x}{2}\right) + 12\left(\frac{x}{3}\right) - 12\left(\frac{x}{4}\right) = 9(12)$$

$$6x + 4x - 3x = 108$$

$$\frac{7x}{7} = \frac{108}{7}$$

$$x = \frac{108}{7}$$

d) $\frac{12}{x} = -5 + 7$

LCD = x

$$x\left(\frac{12}{x}\right) = -5(x) + 7(x)$$

$$12 = -5x + 7x$$

$$\frac{12}{2} = \frac{2x}{2}$$

$$6 = x$$

f) $\frac{2x}{3} - 3x + 21 = 0$

LCD = 3

$$3\left(\frac{2x}{3}\right) - 3(3x) + 3(21) = 0(3)$$

$$2x - 9x + 63 = 0$$

$$\begin{array}{r} -7x + 63 = 0 \\ -63 \quad -63 \end{array}$$

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

$$x = 9$$

$$\text{LCD} = 20$$

$$g) \frac{2x}{5} + \frac{3}{4} = \frac{4x}{5} - \frac{1}{2}$$
$$20 \left(\frac{2x}{5} \right) + 20 \left(\frac{3}{4} \right) = 20 \left(\frac{4x}{5} \right) - 20 \left(\frac{1}{2} \right)$$

$$8x + 15 = 16x - 10$$
$$-16x \quad -16x$$

$$-8x + 15 = -10$$
$$-15 \quad -15$$

$$-8x = -25$$
$$\frac{-8x}{-8} = \frac{-25}{-8}$$

$$x = \frac{25}{8}$$

$$LCD = e \quad e \left(\frac{-21}{e} \right) = 7e$$

$$-21 = 7e$$
$$\frac{-21}{7} = \frac{7e}{7}$$

$$-3 = e$$

$$k) \frac{9}{-r} = 12 \quad \text{LCD} = -r$$

$$-r \left(\frac{9}{-r} \right) = 12(-r)$$

$$9 = -12r$$
$$\frac{9}{-12} = \frac{-12r}{-12}$$

$$-\frac{9}{12} = r$$

$$\frac{-9 \div 3}{12 \div 3} = r$$

$$\frac{-3}{4} = r$$

$$\text{LCD} = x$$

$$h) \frac{10}{x} = -2$$

$$x \left(\frac{10}{x} \right) = -2(x)$$

$$10 = -2x$$
$$\frac{10}{-2} = \frac{-2x}{-2}$$

$$-5 = x$$

$$j) -6 = \frac{30}{n}$$

$$\text{LCD} = n$$

$$n(-6) = \left(\frac{30}{n} \right) n$$

$$-6n = 30$$
$$\frac{-6n}{-6} = \frac{30}{-6}$$

$$n = -5$$

$$l) \frac{56}{x} = 64$$

$$\text{LCD} = x$$

$$x \left(\frac{56}{x} \right) = 64x$$

$$56 = 64x$$
$$\frac{56}{64} = \frac{64x}{64}$$

$$\frac{56}{64} = x$$

$$\frac{56 \div 8}{64 \div 8} = x$$

$$\frac{7}{8} = x$$