

3.3 – “Solving Equations with FRACTIONS”

- STEPS:**
- 1) Eliminate the fractions by multiplying each term in the equation by the **LOWEST COMMON DENOMINATOR (LCD)**.
 - 2) Follow steps from previous lessons.

Ex. 1) Solve and check.

a) $6 = \frac{1}{3}(8 + x)$

$18 = (8 + x)$

$x = 18 - 8$

$x = 10$

LS	RS
6	$\frac{1}{3}(8+x)$
	$\frac{1}{3}(8+10)$
6	6
	LS = RS
	$x = 10$

b) $\frac{3(y-5)}{4} = 7$

$3(y-5) = 28$

$3y - 15 = 28$

$3y = 43$

$y = \frac{43}{3}$

LS	RS
$\frac{3(y-5)}{4}$	7
$\frac{3(\frac{43}{3}-5)}{4}$	
$\frac{43-15}{4}$	
$\frac{28}{4}$	
7	

\therefore LS = RS $x = \frac{43}{3}$

c) $\frac{x}{3} - \frac{3x}{2} = \frac{1}{6} - x$

↳ multiply everything by 6.

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

$2x - 9x = 1 - 6x$

$-7x + 6x = 1$

$-x = 1$

$x = -1$

LS	RS
$\frac{x}{3} - \frac{3x}{2}$	$\frac{1}{6} - x$
$-\frac{1}{3} + \frac{3}{2}$	$\frac{1}{6} - (-1)$
$\frac{-2+9}{6}$	= $1\frac{1}{6}$
$\frac{7}{6}$	

LS = RS $x = -1$

$$d) \frac{1}{3}(2x - 5) = \frac{3}{4}(x - 2) \quad \leftarrow \text{multiply by 12}$$

$$4(2x - 5) = 9(x - 2)$$

$$8x - 20 = 9x - 18$$

$$8x - 9x = -18 + 20$$

$$-x = 2$$

$$x = -2$$

$$e) \frac{k+2}{3} = \frac{k-4}{5} \quad \leftarrow \text{multiply by 15}$$

$$5(k+2) = 3(k-4)$$

$$5k + 10 = 3k - 12$$

$$5k - 3k = -12 - 10$$

$$2k = -22$$

$$k = -11$$

$$f) -1 = \frac{x+1}{3} + \frac{2-3x}{2} \quad \leftarrow \text{multiply by 6}$$

$$-6 = 2(x+1) + 3(2-3x)$$

$$-6 = 2x + 2 + 6 - 9x$$

$$-6 - 8 = -7x$$

$$-14 = -7x$$

$$x = 2$$