Solving Equations Review

1. Remember to Solve an equation means to **Isolate the variable** (*get it by itself*) and determine its value that will make the equation true (e.g. LS = RS)

2. When you are moving a term you are really doing the **opposite operation** to that term and doing it to both sides of the equation

3. If equations contain fractions... **CLEAR THE FRACTIONS!!**

4. If there is a number or letter in front of a set of brackets you must first **Expand (Distributive Property)** to remove the brackets

Solve the following Equations. Show work for each.

a) $x + 10 = 15$

$x = 5$

b) $x - 20 = -4$

$x = 16$

c) $\dfrac{x}{5} = -3$

$x = -15$

d) $-8y = 32$

$-y = -4$

e) $3 - x = 7$

$-x = 4$

$x = -4$

f) $3x + 4 = -5$

$3x = -9$

$x = -3$

g) $\dfrac{x+4}{2} = 12$

$x + 4 = 24$

$x = 20$

h) $8(x + 3) = 40$

$x + 3 = 5$

$x = 2$

i) $-3 - 4y = -6$

$-4y = -3$

$y = \dfrac{3}{4}$

j) $8x + 4 = 5x - 11$

$8x - 5x = -11 - 4$

$3x = -15$

k) $5(x - 2) = x + 2$

$5x - 10 = x + 2$

$5x - x = 12$

$4x = 12$

$x = 3$

l) $x + 8 = 7$

$x = 7 - 8$

$x = -1$

m) $5x = -35$

$x = \dfrac{-35}{5}$

$x = -7$

n) $3 - x = 7$

$-x = 4$

$x = -4$

o) $\dfrac{1}{2}x + 1 = 3$

$\dfrac{1}{2}x = 2$

$x = 4$

p) $\dfrac{x+2}{3} = 2$

$x + 2 = 6$

$x = 4$

q) $\dfrac{x}{3} = \dfrac{4}{5}$

$5x = 12$

$x = \dfrac{12}{5}$

r) $\dfrac{3}{x} = \dfrac{7}{11}$

$7x = 33$

$x = \dfrac{33}{7}$

s) $7x - 4 = 12 - 3x$

$7x + 3x = 12 + 4$

$10x = 16$

$x = \dfrac{16}{10} = 1.6$

t) $\dfrac{x}{3} - 4 = \dfrac{1}{2}$

$\dfrac{x}{3} = \dfrac{9}{2}$

$x = \dfrac{27}{2}$

$x = 13\dfrac{1}{2}$

u) $3(x + 3) = 5(x + 2) + 1$

$3x + 9 = 5x + 10 + 1$

$3x - 5x = 10 + 1 - 9$

$-2x = 2$

$x = -1$

v) $5y - 18 = -8$

$5y = 10$

$y = 2$

w) $5m + 16 = 3m$

$2m = 16$

$m = 8$

x) $13t - 15 = 35 - 12t$

$13t + 12t = 35 + 15$

$25t = 50$

$t = 2$

y) $3(5m + 4) = 5(6m - 1)$

$15m + 12 = 30m - 5$

$-15m = -17$

$m = \dfrac{17}{15}$

z) $\dfrac{1}{5}x - 3 = \dfrac{1}{4}x$

$\dfrac{1}{5}x - \dfrac{1}{4}x = 3$ ⇐ multiply by 20

$4x - 5x = 60$

$-x = 60$

$x = -60$

z2) $\dfrac{r+5}{4} + \dfrac{r-2}{3} = 7$ ⟩ multiply by 12

$3(r+5) + 4(r-2) = 84$

$3r + 15 + 4r - 8 = 84$

$7r = 84 - 15 + 8$

Answers:

a) x = 5	b) x = 16	c) x = -15	d) y = -4	e) x = -4	f) x = -3	g) x = 20
h) x = 2	i) y = ¾	j) x = -5	k) x = 3	l) x = -1	m) x = -7	n) x = -4
o) x = 4	p) x = 4	q) x = 12/5	r) x = 33/7	s) x = 8/5	t) x = 27/2	u) x = -1
v) y = 2	w) m = -8	x) t = 2	y) m = 17/15	z) x = -60	z2) r = 11	