

## A Review of Equation Solving

Many units in this course rely on equation solving

We will review all the techniques you have learned in Math 8 and 9

**(Goal is to get the x by itself)**

Solve the following

a)  $6x - 5 = 17$

$$6x = 17 + 5 \rightarrow 6x = 22$$

$$x = \frac{22}{6} \text{ or } \frac{11}{3}$$

b)  $5(3x - 7) = 12$

Remove brackets

$$15x - 35 = 12 \rightarrow 15x = 12 + 35 \rightarrow 15x = 47$$

$$x = \frac{47}{15}$$

c)  $16x - 9 + 4x = 3x - 7$

x's left, #'s right

$$16x + 4x - 3x = -7 + 9 \rightarrow 17x = 2$$

$$x = \frac{2}{17}$$

d)  $6x + 2(9x - 3) = 4(5x - 11)$

Remove brackets

$$6x + 18x - 6 = 20x - 44 \quad \text{x's left, #'s right} \quad 6x + 18x - 20x = -44 + 6$$

$$4x = -38$$

$$x = \frac{-38}{4} \text{ or } \frac{-19}{2}$$

e)  $\frac{-5x}{4} + 5 = 11$

$$\frac{-5x}{4} = 11 - 5 \rightarrow \frac{-5x}{4} = 6 \quad \text{x by 4, } \div -5$$

$$x = \frac{24}{-5}$$

f)  $\frac{7x}{5} - \frac{7}{4} = \frac{11}{10}$

5,4,10 all go into 20, blast with 20

$$\frac{7x(20)}{5} - \frac{7(20)}{4} = \frac{11(20)}{10} \rightarrow 28x - 35 = 22$$

$$28x = 22 + 35 \rightarrow 28x = 57$$

$$x = \frac{57}{28}$$

g)  $\frac{3x-1}{3} = \frac{9}{2} - \frac{7x+4}{4}$

3,2,4 all go into 12, blast with 12  $\frac{3x-1}{3} (12) = \frac{9(12)}{2} - (12) \frac{7x+4}{4}$

$$4(3x - 1) = 54 - 3(7x + 4) \quad \text{Remove brackets} \quad 12x - 4 = 54 - 21x - 12$$

$$12x + 21x = 54 - 12 + 4 \rightarrow 33x = 46$$

$$x = \frac{46}{33}$$

Assignment = worksheet

*A Review Sheet on Equation Solving*

*1) Solve the following using reduced fractions*

*a)  $9x - 4 = 10$*

*b)  $9 - 16x = 30$*

*c)  $\frac{x}{5} - 3 = 19$*

*d)  $\frac{3x}{4} + 7 = 19$*

*e)  $19x + 7 = 11x + 19$*

*f)  $16x - 8 = 9 - 2x$*

*g)  $16 + 7x - 2x = 16x + 17$*

*h)  $4x - 7 + 2x = 9x - 18$*

*i)  $2(3x - 2) = 19$*

*j)  $-4(9x - 11) = 15$*

*k)  $6(4x - 1) = 3(2x + 3)$*

*l)  $10(6x + 1) - 11x = 7$*

*m)  $17x - 3(4 - 11x) = 3x + 9$*

*n)  $18x + 2(3x - 2) - 6(3x - 1) = 2x - 98$*

$$o) \quad 9(3x - 2) + 7 = 2(8x + 1)$$

$$p) \quad 10(3x + 6) + 2(5x - 2) = 17(x + 2) - 3(5x + 6)$$

$$q) \quad \frac{12}{5x} = 18$$

$$r) \quad \frac{x+4}{6} = \frac{3x+9}{5}$$

$$s) \quad \frac{5x-2}{3} = \frac{9x+7}{7}$$

$$t) \quad \frac{3x}{2} - \frac{7}{3} = \frac{11}{5}$$

$$u) \quad \frac{4x}{3} - \frac{9}{7} = 7x + \frac{2}{21}$$

$$v) \quad \frac{3x-5}{9} + \frac{6}{5} = \frac{1}{15}$$

$$w) \quad \frac{5x-1}{3} + \frac{6}{5} = \frac{8x+4}{5}$$

$$x) \quad \frac{16x+7}{3} + \frac{4}{5} = \frac{7x}{2} - \frac{12}{5}$$