

## Equations Review

Your goal is to isolate the variable on one side...

- 1- Remove brackets
- 2- Separate the terms that contain the variable from the others  
Note, it might be easier sometimes to get rid of the denominators...
- 3- Divide by the coefficient of  $x$

Examples:

a)  $3x - 5 = 13$

$$3x = 13 + 5$$

$$3x = 18 \quad \boxed{x = 6}$$

b)  $7x - 4 = 4x + 1$

$$7x - 4x = 4 + 1$$

$$3x = 5$$

$$\boxed{x = 5/3}$$

c)  $2(3x - 1) = 4x - 3$

$$6x - 2 = 4x - 3$$

$$6x - 4x = -3 + 2$$

$$2x = -1$$

$$\boxed{x = -1/2}$$

d)  $3 - 2(x - 5) = 3x + 12$

$$3 - 2x + 10 = 3x + 12$$

$$-2x - 3x = 12 - 3 - 10$$

$$-5x = -1 \quad \boxed{x = 1/5}$$

e)  $\frac{3}{4}(x - 8) = 3x + 1$

$$\frac{3}{4}x - 6 = 3x + 1$$

$$3x - 24 = 12x + 4$$

$$3x - 12x = 24 + 4$$

$$-9x = 28$$

$$\boxed{x = \frac{28}{9}}$$

f)  $\frac{3x+1}{2} = \frac{5x-7}{3}$

$$3(3x+1) = 2(5x-7)$$

$$9x + 3 = 10x - 14$$

$$-x = -17$$

$$\boxed{x = 17}$$

g)  $\frac{2}{3}x - \frac{4}{5} = \frac{1}{5}x - \frac{5}{3}$

$$10x - 12 = 3x - 25$$

$$7x = -13$$

$$\boxed{x = -\frac{13}{7}}$$

Your turn:

$2x - 7 = 5$

$$2x = 12$$

$$\boxed{x = 6}$$

$3x - 5 = 7x + 3$

$$3x - 7x = 5 + 3$$

$$-4x = 8$$

$$\boxed{x = -2}$$

$4(2x - 3) = 5x - 9$

$$8x - 12 = 5x - 9$$

$$8x - 5x = 12 - 9$$

$$3x = 3$$

$$\boxed{x = 1}$$

$4 - 3(x - 4) = 2x + 6$

$$4 - 3x + 12 = 2x + 6$$

$$-3x - 2x = 6 - 4 - 12$$

$$-5x = -10 \quad \boxed{x = 2}$$

$\frac{2}{5}(x - 15) = 4x + 3$

$$\frac{2}{5}x - 6 = 4x + 3$$

$$2x - 30 = 20x + 15$$

$$-18x = 45 \quad x = -\frac{45}{18}$$

$$\boxed{x = -\frac{5}{2}}$$

$\frac{2x-3}{3} = \frac{4x-2}{5}$

$$5(2x-3) = 3(4x-2)$$

$$10x - 15 = 12x - 6$$

$$-2x = 9$$

$$\frac{2}{5}x - \frac{1}{7} = \frac{3}{7}x - \frac{3}{5}$$

$$14x - 5 = 15x - 21$$

$$-x = -16$$

$$\boxed{x = 16}$$