

# Equations/Inequations

Make the pronumeral the subject of the formula

e.g. (i)  $x + 3 = 6$

$$x = 6 - 3$$

$$\underline{x = 3}$$

(ii)  $5z = 45$

$$z = \frac{45}{5}$$

$$\underline{z = 9}$$

(iii)  $4(a - 5) = 16$

$$4a - 20 = 16$$

$$4a = 36$$

$$\underline{a = 9}$$

(iv)  $3z + 2 = z - 9$

$$2z = -11$$

$$\underline{z = -\frac{11}{2}}$$

(v)  $\frac{5}{7y} + \frac{2}{y} = 3$

$$5 + 14 = 21y$$

$$21y = 19$$

$$\underline{y = \frac{19}{21}}$$

(vi)  $\frac{x + 3}{5} = \frac{2x - 6}{3}$

$$3x + 9 = 10x - 30$$

$$7x = 39$$

$$\underline{x = \frac{39}{7}}$$

The inequality sign will only change when:

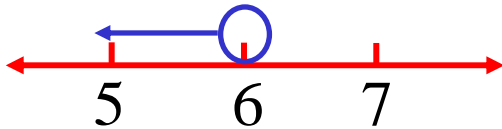
1) Multiply or divide by a negative number

*“if you change the sign, you change the sign”*

2) The reciprocal of both sides are taken

e.g. (i)  $6x < 36$

$x < 6$



(ii)  $2 \leq 6 - 4x \leq 14$

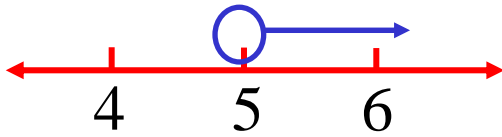
$-4 \leq -4x \leq 8$

$1 \geq x \geq -2$

$-2 \leq x \leq 1$

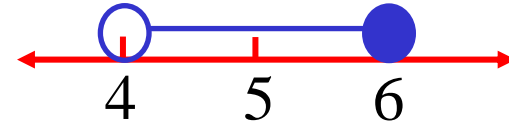


## The “correct” way of writing inequalities



$$x > 5$$

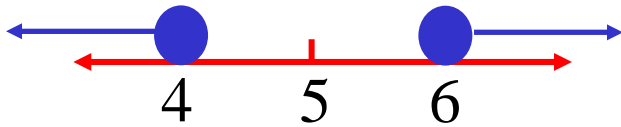
*NOT*  $5 < x$



$$4 < x \leq 6$$

*NOT*  $6 \geq x > 4$

*NOT*  $x > 4$  or  $x \leq 6$  ❌



$$x \leq 4 \text{ or } x \geq 6$$

*NOT*  $x \geq 6$  or  $x \leq 4$

*NOT*  $4 \geq x \geq 6$  ❌

**Exercise 1F; 3acdijm, 4afkp,  
5behlp, 6acf, 7bcegh, 8aceg,  
9bdfhj, 10a, 11\***