

Year 1 Pure Chapter 3 - Equations + Inequalities

Quadratic Simultaneous Equations

$$x + 2y = 3$$

$$x^2 + 3xy = 10$$

$$(3 - 2y)^2 + 3(3 - 2y)y = 10$$

$$9 - 12y + 4y^2 + 9y - 6y^2 = 10$$

$$2y^2 + 3y + 1 = 0$$

$$y = -\frac{1}{2} \text{ or } y = -\frac{1}{2}$$

Don't forget to find the x values.

$$x = 4 \text{ or } x = 5$$

Linear Inequalities

$$-2x - 3 < 5$$

$$-2x < 8$$

$$x > -4$$

If you multiply both sides of the equation by -1 , then you need to change the direction of the inequality.

Shading Regions

$$> \text{ and } \geq$$

Shade **above** the line

$$< \text{ and } \leq$$

Shade **below** the line

$$\leq \text{ and } \geq$$

Solid line

$$< \text{ and } >$$

Dashed line

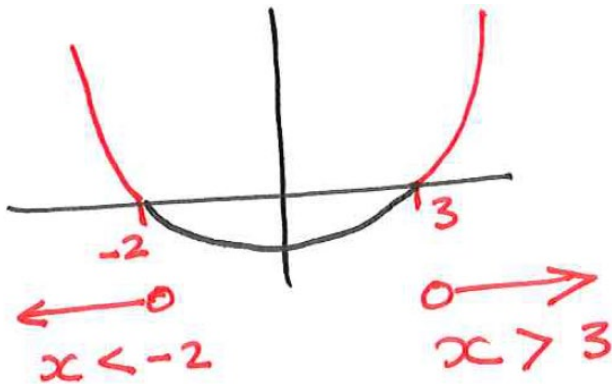
Quadratic Inequalities

Quadratic inequality > 0

Part of the graph that is above the x axis.

$$x^2 + 5x + 6 > 0$$

$$(x + 2)(x + 3) > 0$$



Quadratic inequality < 0

Part of the graph that is below the x axis.

$$x^2 + 5x + 6 < 0$$

$$(x + 2)(x + 3) < 0$$

