

## National 5 Homework : 1 year course

### Solving Quadratic Functions

1. Solve the following quadratic equations by factorising:-

(a)  $4x^2 - 36 = 0$

(b)  $x^2 + 8x + 12 = 0$

(c)  $2x^2 - 11x + 12 = 0$

2. Solve the following quadratic equation using the formula, correct to 2 decimal places:-

(a)  $x^2 + 7x + 4 = 0$

(b)  $3a^2 - 12a + 11 = 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

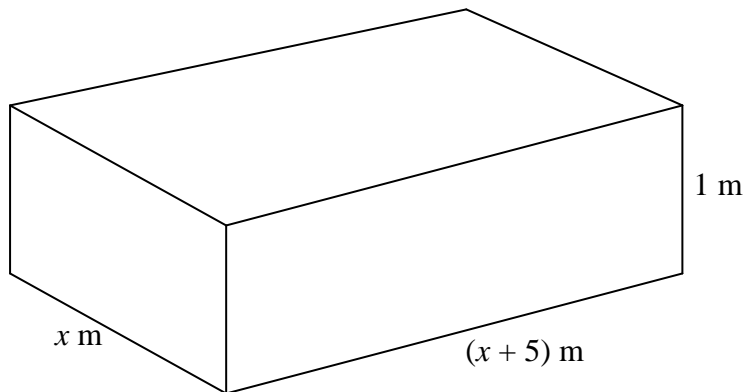
3. Find the discriminant for each of these and use it to determine the nature of the roots:-

(a)  $x^2 + 10x + 25 = 0$

(b)  $4x^2 + 9x + 6 = 0$

4. If  $ax^2 + 6x + 1 = 0$  has one real root find the value of a.

5. A cuboid is shown below.



It has length  $(x + 5)$  metres, breadth  $x$  metres, height 1 metres and volume 24 cubic metres.

(a) Show that  $x^2 + 5x - 24 = 0$

(b) Using the equation in part (a), find the breadth of the cuboid.