

## Quadratic Formula

Quadratic equation will always be in the form

$$ax^2 + bx + c = 0$$

where  $a$  is the coefficient of  $x^2$   
 $b$  is the coefficient of  $x$   
 $c$  is the constant. } The value in front of the variable - coefficient.

Log Tables Pg 20

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

Eg 1) Solve  $x^2 + 4x + 2 = 0$  to two decimal places.

① Find  $a$ ,  $b$  and  $c$  from the given quadratic

$$a = 1$$

$$b = +4$$

$$c = 2$$

Sub these values into quadratic formula.

- Use brackets when substituting

$$\text{Calculator} = \frac{\square}{\square}$$

$$x = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(1)(2)}}{2(1)}$$

calculator

(+)

Surd form

$$-2 + \sqrt{2}$$

[SD]

$$-0.5857$$

$$\text{Ans} = -0.59$$

(-)

Surd form

$$-2 - \sqrt{2}$$

[SD]

$$-3.414$$

$$\text{Ans} = -3.41$$

Q2 Pg 142

$$x^2 + 6x + 4 = 0$$

$$a = 1$$

$$b = +6$$

$$c = 4$$

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

$$\frac{-(-6) \pm \sqrt{(-6)^2 - 4(1)(4)}}{2(1)}$$

$$(+)$$

-3 +  $\sqrt{5}$  surd

[SD]

$$-0.7639$$

$$-0.76$$

$$(-)$$

-3 -  $\sqrt{5}$

[SD]

$$-5.236$$

$$-5.24$$

H/W Pg 142 Q3  $x^2 + 2x - 5 = 0$

Q4  $x^2 - 2x - 7 = 0$

Pg 142  
Q2.