

# Solving Quadratic Equations (C) by Formula



## Section A

Write down the values of  $a$ ,  $b$  and  $c$  in each case then solve the equation using the quadratic formula. Leave answers to 2 decimal places.

$$x^2 + 3x - 1 = 0$$

$$a = 1$$

$$b = 3$$

$$c = -1$$

$$\text{Answer: } -3.30, 0.30$$

$$6 - 3x - 2x^2 = 0$$

$$a = -2$$

$$b = -3$$

$$c = 6$$

$$\text{Answer: } -2.64, 1.14$$

$$8x^2 - 7 = 0$$

$$a = 8$$

$$b = 0$$

$$c = -7$$

$$\text{Answer: } \pm 0.94$$

## Section B

Solve the following equations to 2 decimal places.

1)  $4x^2 + 9x + 1 = 0$  - 2.13, -0.12

2)  $x^2 - 8x + 1 = 0$  0.13, 7.87

3)  $7x^2 + 3x - 2 = 0$  - 0.79, 0.36

4)  $3x^2 - 4x - 5 = 0$  - 0.79, 2.12

5)  $5x - 1 - x^2 = 0$  0.21, 4.79

6)  $4 - 3x - 2x^2 = 0$  - 2.35, 0.85

7)  $2x^2 - 2x = 7x$  0, 4.5

8)  $x(2x + 5) = 10$  - 3.81, 1.31

9)  $(x - 1)^2 = 17$  - 3.12, 5.12

10)  $2(3 - x) = (4x + 3)^2 + 6$

$$-1.125, -0.5$$

## Extension

$$3x^2 - x + 7 = 0$$

**A.** What happens when you try to solve the equation above using the quadratic formula? **No (real) solutions.**

**B.** How does the value of  $b^2 - 4ac$  explain your answer to part A.  **$< 0$  cannot square root negative value.**

**C.** What conditions involving  $a$ ,  $b$ , and  $c$  for  $ax^2 + bx + c = 0$  cause:

- No solutions  $b^2 - 4ac < 0$
- Two solutions  $b^2 - 4ac > 0$
- One solution  $b^2 - 4ac = 0$