Solving Quadratic Equations (C) by Formula

ANSWERS

If $ax^2 + bx + c = 0$, then $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

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.*

$x^2 + 3x - 1 = 0$	$6 - 3x - 2x^2 = 0$	$8x^2 - 7 = 0$
a = 1	a = -2	a = 8
b = 3	b = -3	b = 0
c = -1	c = 6	c = 7
Answer: -3.30, 0.30	Answer: -2.64, 1.14	Answer: ± 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) $5x - 1 - x^2 = 0$ 0.12, 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 $b^2 - 4ac = 0$