ANSWERS

Quadratic Equations - Formulas

(b) Use the quadratic formula to solve the equation $5x^2 + 20x - 4 = 0$.
Give your answers correct to two decimal places.

$$x = \frac{-20 \pm \sqrt{20^2 - 4 \times 5 \times -4}}{10}$$ (1)

$$x = \frac{-20 \pm \sqrt{400 + 80}}{10}$$

$$x = \frac{-20 \pm 21.9}{10}$$

(1) $x = 0.19$ or $x = -4.19$ (1)

[3]

(b) Use the quadratic formula to solve the following quadratic equation, giving your answers correct to 2 decimal places.

$3x^2 - 5x - 7 = 0$

$$x = \frac{5 \pm \sqrt{(-5)^2 - 4 \times 3 \times -7}}{6}$$ (1)

$$x = \frac{5 \pm \sqrt{25 + 84}}{6}$$

$$x = \frac{5 \pm \sqrt{109}}{6}$$

(1) $x = 2.57$ or $x = -0.91$ (1)

[3]

13. Use the formula method to solve the equation $3x^2 + 8x + 1 = 0$, giving solutions correct to two decimal places.

$$x = \frac{-8 \pm \sqrt{8^2 - 4 \times 3 \times 1}}{6}$$ (1)

$$x = \frac{-8 \pm \sqrt{64 - 12}}{6}$$

$$x = \frac{-8 \pm \sqrt{52}}{6}$$

$$x = \frac{-8 \pm 7.21}{6}$$

(1) $x = -2.54$ or $x = -0.13$ (1)

[3]

(b) **Use the formula method to solve the equation $2x^2 + 42x - 57 = 0$, giving solutions correct to two decimal places.**

$$x = \frac{-42 \pm \sqrt{42^2 - 4 \times 2 \times -57}}{4}$$ (1)

$$x = \frac{-42 \pm \sqrt{1764 + 456}}{4}$$

$$x = \frac{-42 \pm \sqrt{2220}}{4}$$

$$x = \frac{-42 \pm 47.1}{4}$$

(1) $x = 1.28$ or $x = -22.3$ (1)

[3]

(b) **Use the formula method to solve the equation $21x^2 + 17x - 250 = 0$, giving solutions correct to two decimal places.**

$$x = \frac{-17 \pm \sqrt{17^2 - 4 \times 21 \times -250}}{42}$$ (1)

$$x = \frac{-17 \pm \sqrt{289 + 21000}}{42}$$

$$x = \frac{-17 \pm 145{\cdot}9}{42}$$

$x = 3{\cdot}07$ or $x = -3{\cdot}88$ (1) (1)

[3]

(b) **Solve the following quadratic equation.**
Give your answers correct to two decimal places. **[3]**

$$5x^2 + 3x - 7 = 0$$

$$x = \frac{-3 \pm \sqrt{3^2 - 4 \times 5 \times -7}}{10}$$ (1)

$$x = \frac{-3 \pm \sqrt{9 + 140}}{10}$$

$$x = \frac{-3 \pm 12{\cdot}2}{10}$$

$x = 0{\cdot}92$ or $x = -1{\cdot}52$ (1) (1)