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GCSE Exam Questions

Quadratic Equations | Algebra

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GCSE Exam Questions: Quadratic Equations

1) Solve: $4x^2 = 36$

_____

(2 marks)

2) **(a)** Factorise: $x^2 - x - 30$

_____

(2)

(b) Hence or otherwise solve the equation: $x^2 - x - 30 = 0$

_____

(1)

(3 marks)

3) Solve the quadratic equation $3x^2 + 6x - 2 = 0$.

Write your answer(s) in surd form.

_____

(3 marks)

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1

GCSE Exam Questions: Quadratic Equations

4) Solve the equation $x^2 = 2(x - 3)^2$.

Give your answer to 3 significant figures.

(3 marks)

5) Charlie is using the quadratic formula to solve a quadratic equation.

She substitutes values into the formula and correctly works out

$$x = \frac{-(-4) - \sqrt{(-4)^2 - 4(3)(-2)}}{2(3)}$$

What is the quadratic equation that Charlie is solving?

Give your answer in the form $ax^2 + bx + c = 0$, where a, b and c are integers.

(2 marks)

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2

GCSE Exam Questions: Quadratic Equations Answers

		Question	Answer	Marks
1)		Solve: $4x^2 = 36$	$x^2 = 9$ $x = \pm 3$	**(1)** **(1)**
2)	**(a)**	Factorise: $x^2 - x - 30$	$(x \pm 5)(x \pm 6)$ $(x - 6)(x + 5)$	**(1)** **(1)**
	(b)	Hence or otherwise solve the equation: $x^2 - x - 30 = 0$	$x = -5$ or $x = 6$	**(1)**
3)		Solve the quadratic equation $3x^2 + 6x - 2 = 0$. Write your answer(s) in surd form:	Substitution into the quadratic formula Attempt to simplify $\dfrac{-3 - \sqrt{3}}{3}$ **and** $\dfrac{-3 + \sqrt{3}}{3}$	**(1)** **(1)** **(1)**
4)		Solve the equation $x^2 = 2(x - 3)^2$. Give your answer to 3 significant figures.	Expanding and simplifying to give an equation in the form $ax^2 + bx + c$. Substitution into the quadratic formula. $x = 6 - 3\sqrt{2} = 1.76$, $x = 6 + 3\sqrt{2} = 10.2$	**(1)** **(1)** **(1)**
5)		Charlie is using the quadratic formula to solve a quadratic equation. She substitutes values into the formula and correctly works out $x = \dfrac{-(-4) - \sqrt{(-4)^2 - 4(3)(-2)}}{2(3)}$ What is the quadratic equation that Charlie is solving? Give your answer in the form $ax^2 + bx + c = 0$, where a, b and c are integers	**Any two of** $a = 3$, $b = -4$, $c = -2$ $3x^2 - 4x - 2 = 0$ **oe**	**(1)** **(1)**

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