QUADRATIC EQUATIONS

[ESTIMATED TIME: 45 minutes]

GCSE

(+ IGCSE) EXAM QUESTION PRACTICE

1. **[2 marks]**

Solve $2x^2 = 72$

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2. **[3 marks]**

(a) Factorise $x^2 + 4x - 12$

.....

(2)

(b) Hence, or otherwise, solve the equation $x^2 + 4x - 12 = 0$

.....

(1)

3. **[3 marks]**

Solve $3x^2 + 8x + 2 = 0$

Give your solutions correct to 3 significant figures.
Show your working clearly.

.....

4. **[4 marks]**

(a) Solve $x^2 - 8x + 15 = 0$

.....

(3)

(b) Hence, or otherwise, write down the solutions to $(x+2)^2 - 8(x+2) + 15 = 0$

.....

(1)

5. **[3 marks]**

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

Give your solutions correct to 3 significant figures.
Show your working clearly.

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6. **[3 marks]**

Mel is using the quadratic formula to solve a quadratic equation.
She substitutes values into the formula and correctly gets

$$\frac{-5 \pm \sqrt{25 - 12}}{6}$$

Work out the quadratic equation that Mel is solving.
Give your answer in the form $ax^2 + bx + c = 0$, where a, b and c are integers.

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7. **[3 marks]**

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

Give your solutions correct to 3 significant figures.

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8. **[3 marks]**

(a) Factorise $3x^2 + 7x - 6$

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(2)

(b) Hence, or otherwise, solve the equation $3x^2 + 7x - 6 = 0$

.....

(1)

9. **[3 marks]**

Solve $x^2 + 5x = 12$

Give your solutions correct to 3 significant figures.

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10. **[3 marks]**

Solve $(2x - 5)^2 = 49$

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11. **[3 marks]**

A ball is thrown vertically upwards from a point P.
The height above P of the ball t seconds after it was thrown is h metres, where $h = 11t - 5t^2$

Work out the values of t when the height of the ball above P is 5 metres.
Show your working clearly.

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12. **[4 marks]**

Solve $2x^2 - 8 = 3x + 5$
Give your answers correct to 3 significant figures.

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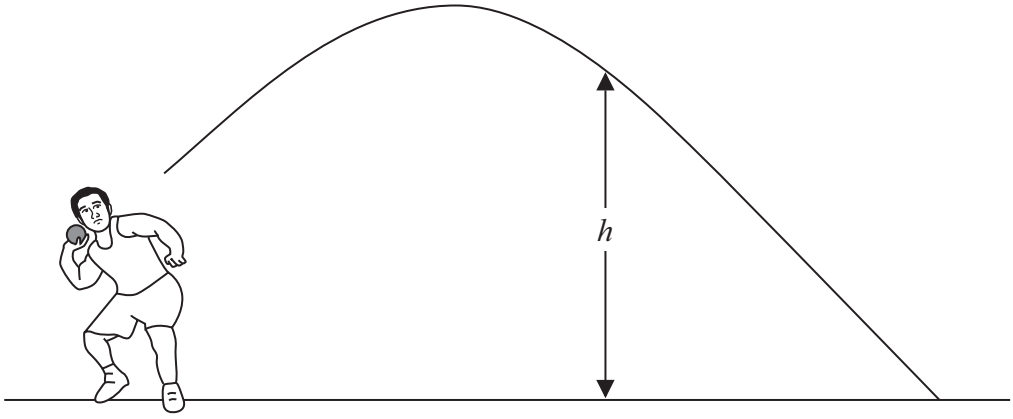
13. **[4 marks]**



Ivan is a shot putter.
The formula $h = 2 + 6t - 5t^2$ gives the height, h metres, of the shot above the ground t seconds after he has released the shot.

(i) Solve $2 + 6t - 5t^2 = 0$
Give your solutions correct to 3 significant figures.
Show your working clearly.

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The shot hits the ground after T seconds.

(ii) Write down the value of T.
Give your answer correct to 3 significant figures.

$T =$ .....

14. **[3 marks]**

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

Give your solutions correct to 2 decimal places.

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15. **[4 marks]**

Solve $(x-3)^2 = x+5$

Give your answers correct to 3 significant figures.

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