Quadratics and Parabolas - Practice test 1

Name: _____ Date: _____

16 questions | 49 marks | 55 minutes

A balanced paper covering expressions, equations, graphs and practical interpretation.

No calculator needed.

1. Expand $(x+6)(x-2)$. [2 marks]

2. Factorise $x^2+3x-28$. [2 marks]

3. Factorise $2x^2-9x+4$. [3 marks]

4. Solve $x(x-5)=0$. [2 marks]

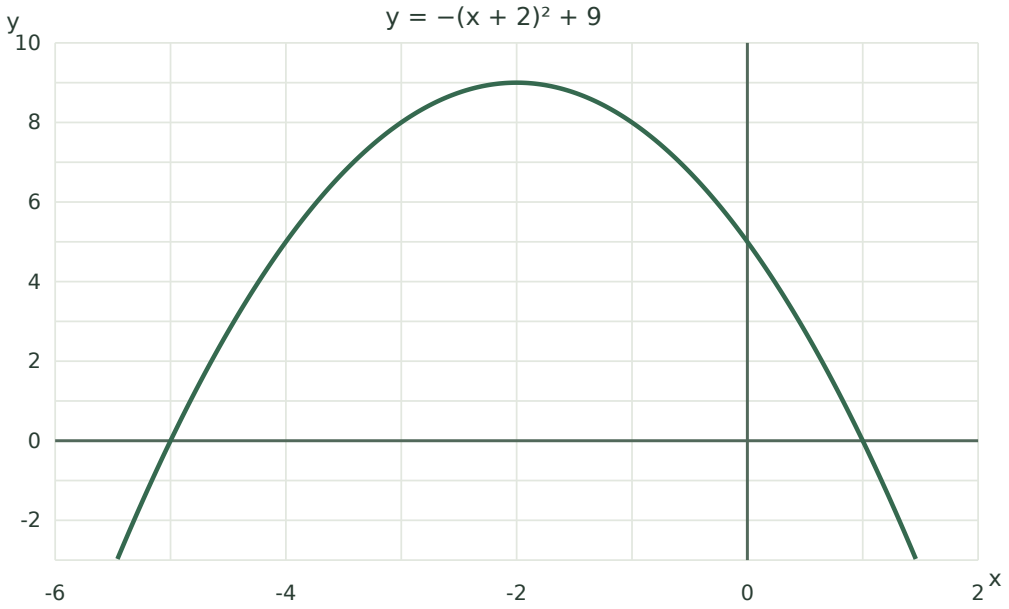
5. Solve $x^2 - 7x + 10 = 0$. [3 marks]

6. Complete the square: $x^2 - 6x + 2$. [3 marks]

7. Use the quadratic formula to solve $2x^2 + x - 4 = 0$ exactly. [3 marks]

8. How many real roots does $3x^2 + 2x + 5 = 0$ have? Justify your answer. [2 marks]

9. For $y = -(x+2)^2 + 9$, find the requested features. [5 marks]



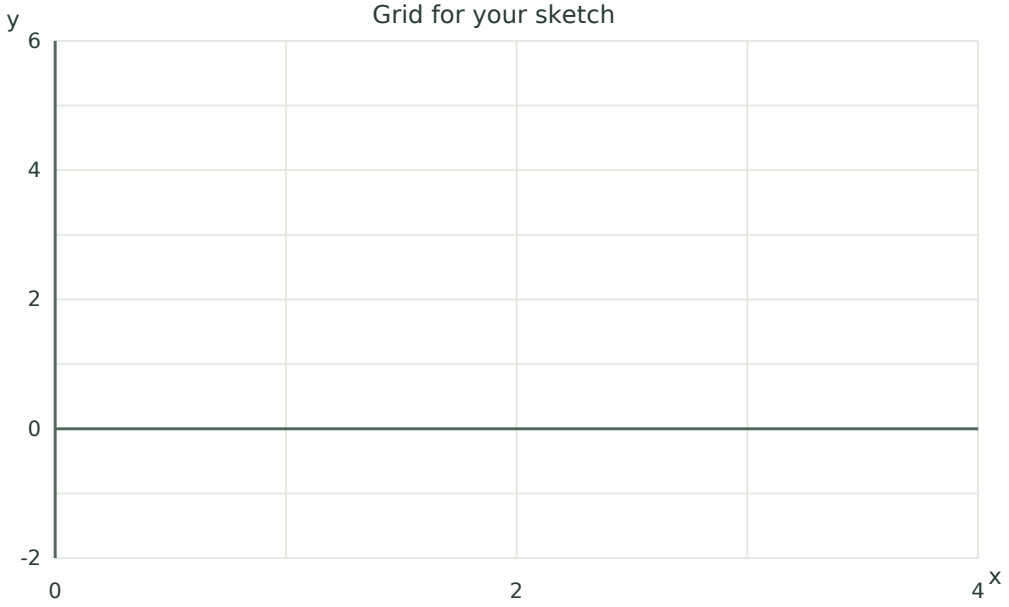
(a) State the vertex and axis of symmetry. [2 marks]

(b) Find all intercepts. [3 marks]

10. Write $y = x^2 + 2x - 8$ in factored and vertex forms. [4 marks]

11. Sketch $y = x^2 - 4x + 3$. Label the vertex and all intercepts. [4 marks]

Grid for your sketch



12. Use the table to locate the positive root of $x^2 - 7 = 0$ between two listed values. [3 marks]

x	2.64	2.65
x^2-7	-0.0304	0.0225

13. Find the intersection points of $y = x^2 - 4$ and $y = 3x$. [4 marks]

14. A rectangle is 2 cm longer than it is wide. Its area is 48 cm². Find its dimensions. [3 marks]

15. Find k so that $x^2 - 8x + k = 0$ has one repeated real root. [3 marks]

16. A student solves $x^2 = 7x$ by dividing by x and reports only x=7. Explain what was lost and give all solutions. [3 marks]