Quadratics and Parabolas - Practice 1

Name: _____ Date: _____

16 questions | 44 marks | 60 minutes

Balanced expansion, factorisation, equations and graph features.

A scientific calculator may be used.

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

2. Expand $(x-4)^2$. [2 marks]

3. Use a difference of squares to calculate 19×21. [2 marks]

4. Factorise $x^2+9x+20$. [2 marks]

5. Factorise $x^2 - x - 12$. [2 marks]

6. Solve $x^2 - 5x + 6 = 0$. [2 marks]

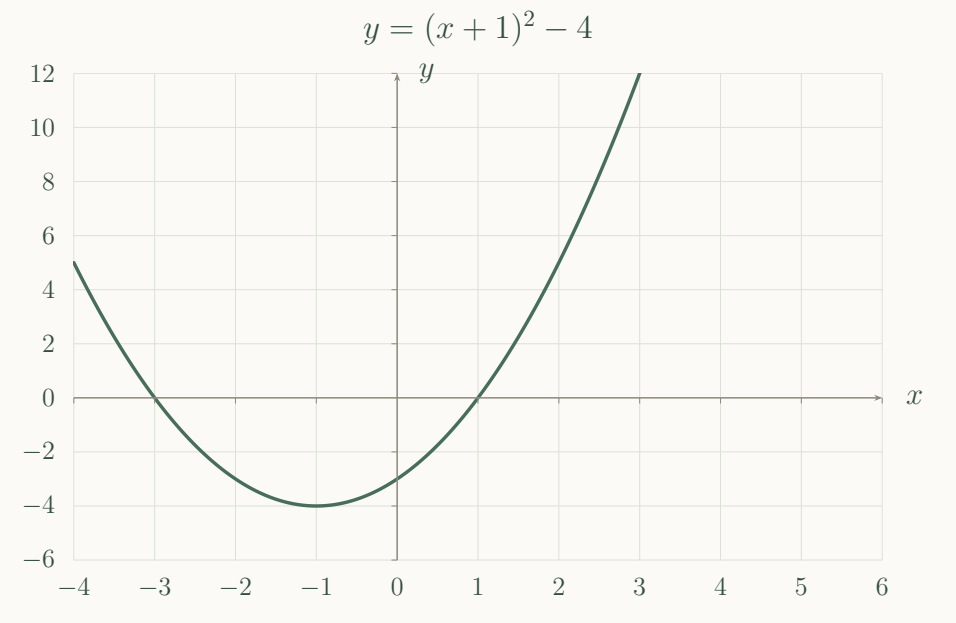
7. Solve $x^2 = 4x$. [2 marks]

8. Complete a table for $y = x^2 - 2x - 3$ at $x = -1, 0, 1, 2, 3$. [3 marks]

Complete the outputs

x	-1	0	1	2	3
y	?	?	?	?	?

9. The supplied curve is $y=(x+1)^2-4$. [4 marks]



(a) State both x-intercepts. [2 marks]

(b) State the turning point and axis. [2 marks]

10. Give the turning point and minimum of $y = (x + 2)^2 - 1$. [3 marks]

11. For $y = -x^2 + 16$, state the maximum and both roots. [3 marks]

12. Lee says $(x + 5)^2 = x^2 + 25$. Explain the missing term. [3 marks]

13. Write a monic quadratic rule with roots -4 and 2, then expand it. [3 marks]

14. A rectangle is x cm wide and $x+2$ cm long. Its area is $63\ \text{cm}^2$. Find its dimensions. [4 marks]

15. Estimate both solutions of $x^2 = 10$ to two decimal places. [3 marks]

16. Revenue is $R = n(14 - n)$ dollars. Find whole-number counts giving $R = 40$ and check both. [4 marks]