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Factorising Harder Quadratics

Grade 7 topic · Higher tier · Edexcel and AQA

How to use this pack
20 questions that get harder as you go. Questions 1–15 (63 marks) build up to the harder Grade 8–9 style questions at the end; aim to complete all 20. Show your working on the lines and write your final answer on the answer line, then mark yourself with the answers at the back. Diagrams are not drawn accurately. Total: 86 marks.

Warm-up

1 Factorise $6x^2 - 7x - 5$. **[4 marks]**

Answer _____

2 Factorise $5x^2 - 12x + 4$. **[4 marks]**

Answer _____

3 Factorise $4x^2 - 7x + 3$. **[4 marks]**

Answer _____

4 Factorise $2x^2 + 9x + 10$. **[4 marks]**

Answer _____

5 Factorise $12x^2 - x - 20$. **[4 marks]**

Answer _____

Core

6 Factorise $36x^2 - 49$. **[3 marks]**

Answer _____

7 Factorise $4x^2 - 23x - 6$. **[4 marks]**

Answer _____

8 Factorise completely $24x^2 - 46x + 20$. **[5 marks]**

Answer _____

9 Factorise $4x^2 + 16x + 16$. **[4 marks]**

Answer _____

10 Factorise $16x^2 - 32x + 16$. **[4 marks]**

Answer _____

Stretch

11 Solve $5x^2 - 24x - 5 = 0$. **[5 marks]**

Answer _____

12 Factorise $2x^2 - x - 1$. **[4 marks]**

Answer _____

13 Factorise completely $9x^2 + 12x - 45$. **[5 marks]**

Answer _____

14 Factorise $4x^2 + 13x + 3$ and hence solve $4x^2 + 13x + 3 = 0$. **[5 marks]**

Answer _____

15 Factorise $12x^2 - 25x + 12$. **[4 marks]**

Answer _____

Challenge

16 Simplify $(6x^2 + 17x + 5) \div (3x + 1)$. **[5 marks]**

Answer _____

17 Solve $5x^2 + 17x - 13 = 0$ to 3 s.f. (this does not factorise nicely). **[5 marks]**

Answer _____

18 The area of a rectangle is $3x^2 - 5x - 12$ cm². One side is $(3x + 4)$ cm. Write an expression for the other side. **[5 marks]**

Answer _____

19 Factorise $4x^2 - 9y^2$. **[3 marks]**

Answer _____

20 Factorise $5x^2 - 6x + 1$ then write down its roots. **[5 marks]**

Answer _____