

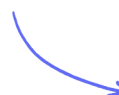
Exam Questions

Factorising

Factorising Out Terms / Factorising by Grouping / Factorising Simple Quadratics / Factorising Harder Quadratics / Difference of Two Squares / Deciding the Factorisation Method

Easy (11 questions)	/13
Medium (19 questions)	/45
Hard (16 questions)	/38
Total Marks	/96

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Easy Questions

1 Factorise $y^2 - 2y$

(1 mark)

2 Factorise $n^2 - 7n$

(1 mark)

3 Factorise $x^2 + 7x$

(1 mark)

4 Factorise $6 + 9x$

(1 mark)

5 Factorise $3e^2 + 5e$

(1 mark)

6 Factorise $3x + 6$

(1 mark)

7 (a) Simplify $3a \times 5b \times 2c$

(1 mark)

(b) Factorise $3y + 6$

(1 mark)

8 Factorise $y^2 + 27y$

(1 mark)

9 Factorise fully $8p^2 - 2p$

(2 marks)

10 Tenzin is given this question.

Factorise fully.

$$2x^2 + 6x$$

Here is his answer.

$$2x^2 + 6x = x(2x + 6)$$

Explain why Tenzin's answer is not correct.

(1 mark)

11 Factorise $x^2 - xy$

(1 mark)

Medium Questions

1 Factorise

$$x^2 + 3x - 10$$

(2 marks)

2 Factorise

$$y^2 - 10y + 16$$

(2 marks)

3 (a) i) Factorise

$$x^2 - 12x + 27$$

[2]

ii) Solve the equation

$$x^2 - 12x + 27 = 0$$

[1]

(3 marks)

(b) Factorise

$$y^2 - 100$$

(1 mark)

4 Factorise

$$y^2 + 7y + 6$$

(2 marks)

5 Factorise $x^2 + 3x - 4$

(2 marks)

6 Factorise $x^2 - 49$

(1 mark)

7 (a) Factorise fully $8a^2 + 12a$

(2 marks)

(b) Factorise $y^2 - y - 2$

(2 marks)

8 Factorise $e^2 + e - 12$

(2 marks)

9 Factorise fully $3xy^2 - 6xy$

(2 marks)

10 (a) Factorise $6m - 9$

(1 mark)

(b) Factorise fully $2x^2y + 4xy^2$

(2 marks)

11 (a) Simplify fully $\frac{n^7 \times n^3}{n^6}$

(2 marks)

(b) Expand and simplify $x(x - 2) + 2x(x + 3)$

(2 marks)

(c) Factorise $5y - 15$

(1 mark)

(d) Factorise fully $18ab + 27ab^2$

(2 marks)

12 Factorise completely $8x^2 + 4xy$

(2 marks)

13 Factorise completely $6y^2 - 9xy$

(2 marks)

14 Factorise fully $9x^2 - 6xy$

(2 marks)

15 Factorise $y^2 - 2y - 35$

(2 marks)

16 Factorise $x^2 - 11x + 24$

(2 marks)

17 Choose the factor of $x^2 - 5x$

A. $x - 1$

B. $-5x$

C. $x - 5$

D. $5x$

(1 mark)

18 Factorise $x^2 - 64$

A. $(x + 8)^2$

B. $(x - 8)^2$

C. $(x + 8)(x - 8)$

D. $x(x - 64)$

(1 mark)

19 Factorise fully $7m^2 + 21m$

(2 marks)

Hard Questions

1 Factorise fully $20x^2 - 5$

(2 marks)

2 (a) Factorise $y^2 - 16$

(1 mark)

(b) Factorise $2p^2 - p - 10$

(2 marks)

3 Factorise $4x^2 - 9$

(1 mark)

4 (a) Factorise $a^2 - b^2$

(1 mark)

(b) Hence, or otherwise, simplify fully $(x^2 + 4)^2 - (x^2 - 2)^2$

(3 marks)

5 Factorise fully $15b^5 c - 35b^3 c^9$

(2 marks)

6 Factorise fully $15y^4 + 20uy^3$

(2 marks)

7 Factorise fully $25a^4c^7d + 45a^9c^3h$

(2 marks)

8 Factorise fully $2e^2 - 18$

(2 marks)

9 Factorise $4c^2 - 9d^2$

(1 mark)

10 Factorise $6y^2 - y - 5$

(2 marks)

11 Factorise $3x^2 + 11x - 20$

(2 marks)

12 Factorise fully $144 - 4x^2$

(2 marks)

13 (a) Factorise $5x^2 + 6x - 8$

(2 marks)

(b) Simplify fully $\frac{x^2 + 9x + 14}{x^2 - 4}$

(3 marks)

14 (a) Here is an identity.

$$x^2 - y^2 \equiv (x + y)(x - y)$$

Use the identity to work out the value of $193^2 - 7^2$.

You must show your working.

(2 marks)

(b) Factorise $100a^2 - 81b^2$

(1 mark)

15 Factorise $3x^2 + 14x + 8$

(2 marks)

16 i) Factorise $x^2 - 43^2$

[1]

ii) Calculate $57^2 - 43^2$

[2]

(3 marks)