HIGHER

7.5 Factorising Harder Quadratics: 1-hour Pack

Total Marks

EDEXCEL 1MA1 · Calculator allowed · about 60 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Solve $12x^2 + 25x - 7 = 0$

(Total for Question 1 is 3 marks)

2 Factorise $6x^2 + 23x + 21$

(Total for Question 2 is 2 marks)

3 Factorise fully $6x^2 + 22x - 84$

(Total for Question 3 is 3 marks)

4 Factorise fully $32x^2 - 8$

(Total for Question 4 is 3 marks)

© Revision Library | revisionlibrary.co.uk

5 Factorise $8x^2 + 10x - 25$

(Total for Question 5 is 2 marks)

---

6 Solve $6x^2 + x - 12 = 0$

(Total for Question 6 is 3 marks)

---

7 Factorise fully $48x^2 - 3$

(Total for Question 7 is 3 marks)

---

8 Factorise $2x^2 - x - 28$

(Total for Question 8 is 2 marks)

---

9 Solve $12x^2 - 25x - 7 = 0$

(Total for Question 9 is 3 marks)

© Revision Library | revisionlibrary.co.uk

10 Factorise fully $9x^2 + 69x + 90$

(Total for Question 10 is 3 marks)

---

11 Factorise $12x^2 - 43x + 35$

(Total for Question 11 is 2 marks)

---

12 Factorise fully $5x^2 - 405$

(Total for Question 12 is 3 marks)

---

13 Solve $9x^2 + 6x - 8 = 0$

(Total for Question 13 is 3 marks)

---

14 Solve $3x^2 - 13x = -12$

(Total for Question 14 is 4 marks)

© Revision Library | revisionlibrary.co.uk

15 Factorise $9x^2 - 16$

(Total for Question 15 is 2 marks)

---

16 Simplify fully $(2x^2 + 5x - 3) / (x^2 - 9)$

(Total for Question 16 is 4 marks)

© Revision Library | revisionlibrary.co.uk

Mark scheme · 7.5 Factorising Harder Quadratics: 1-hour Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

factorises correctly	**M1**
one correct solution	**A1**
x = -7/3 or x = 1/4	**A1**

Answer: x = -7/3 or x = 1/4

Question 2

(ax + p)(bx + q) with two of the three terms correct when expanded	**M1**
(2x + 3)(3x + 7)	**A1**

Answer: (2x + 3)(3x + 7)

Question 3

takes out common factor 2	**M1**
factorises the quadratic	**M1**
2(x + 6)(3x - 7)	**A1**

Answer: 2(x + 6)(3x - 7)

Question 4

common factor or difference of two squares identified	**M1**
difference of two squares factorised	**M1**
8(2x - 1)(2x + 1)	**A1**

Answer: 8(2x - 1)(2x + 1)

Question 5

(ax + p)(bx + q) with two of the three terms correct when expanded	**M1**
(2x + 5)(4x - 5)	**A1**

Answer: (2x + 5)(4x - 5)

Question 6

factorises correctly	**M1**
one correct solution	**A1**
x = -3/2 or x = 4/3	**A1**

Answer: x = -3/2 or x = 4/3

Question 7

common factor or difference of two squares identified	**M1**
difference of two squares factorised	**M1**
3(4x - 1)(4x + 1)	**A1**

Answer: 3(4x - 1)(4x + 1)

Question 8

(ax + p)(bx + q) with two of the three terms correct when expanded	**M1**
(x - 4)(2x + 7)	**A1**

Answer: (x - 4)(2x + 7)

Question 9

factorises correctly	**M1**
one correct solution	**A1**
x = -1/4 or x = 7/3	**A1**

Answer: x = -1/4 or x = 7/3

Question 10

takes out common factor 3	**M1**
factorises the quadratic	**M1**
3(x + 6)(3x + 5)	**A1**

Answer: 3(x + 6)(3x + 5)

Question 11

(ax + p)(bx + q) with two of the three terms correct when expanded	**M1**
(3x - 7)(4x - 5)	**A1**

Answer: (3x - 7)(4x - 5)

Question 12

common factor or difference of two squares identified	**M1**
difference of two squares factorised	**M1**
5(x - 9)(x + 9)	**A1**

Answer: 5(x - 9)(x + 9)

Question 13

factorises correctly	**M1**
one correct solution	**A1**
x = -4/3 or x = 2/3	**A1**

Answer: x = -4/3 or x = 2/3

Question 14

rearranges to $3x^2 - 13x + 12 = 0$	**M1**
factorises correctly	**M1**
one correct solution	**A1**
x = 4/3 or x = 3	**A1**

Answer: x = 4/3 or x = 3

Question 15

recognises $\sqrt{9x^2} = 3x$ and $\sqrt{16} = 4$, one correct bracket seen	**M1**
(3x - 4)(3x + 4) cao	**A1**

Answer: (3x - 4)(3x + 4)

Question 16

factorises numerator: (2x - 1)(x + 3)	**M1**
factorises denominator: (x - 3)(x + 3)	**M1**
cancels common factor (x + 3), ft from their factorisations	**M1**
(2x - 1) / (x - 3) cao	**A1**

Answer: (2x - 1) / (x - 3)

© Revision Library | revisionlibrary.co.uk