4.8 Expanding and Factorising: 30-minute Pack

EDEXCEL 1MA1 · Calculator allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Factorise fully: 8m - 12n.

(Total for Question 1 is 3 marks)

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2 Expand each bracket.

(a) 4(x + 3) **(1)**

(b) 5(2x - 1) **(1)**

(c) -3(x + 4) **(1)**

(Total for Question 2 is 3 marks)

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3 Expand and simplify each expression.

(a) 3(x + 2) + 2(x + 5) **(2)**

(b) 6(x + 1) + 3(x - 2) **(2)**

(Total for Question 3 is 4 marks)

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4 Show that $(x + 2)(x - 2) + 4 = x^2$

(Total for Question 4 is 2 marks)

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5 Solve $3(x + 2) = 5(x - 4)$

(Total for Question 5 is 3 marks)

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6 Which of these is the correct expansion of $(x - 3)(x + 3)$?

- ☐ A) $x^2 - 9$
- ☐ B) $x^2 + 9$
- ☐ C) $x^2 - 6x - 9$
- ☐ D) $x^2 - 6x + 9$

(Total for Question 6 is 1 mark)

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7 A small charity sells charity bags. The cost to make each bag is given by the expression $2x + 3$, where x is the number of special stickers used. The charity makes 5 identical bags.

(a) Write an expression for the total cost for the 5 bags. **(2)**

(b) Expand and simplify the expression from part (a). **(4)**

(Total for Question 7 is 6 marks)

8 Factorise fully $4x^2 - 16$

(Total for Question 8 is 2 marks)

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Mark scheme · 4.8 Expanding and Factorising: 30-minute Pack

Question 1

identify common factor 4 and show factoring step: 4(2m - 3n) or equivalent **M1**

4(2m - 3n) cao **A1**

final answer written in fully factorised form, 4(2m - 3n) oe **B1**

Answer: 4(2m - 3n)

Question 2

(a) 4x + 12 oe **B1**

(a) Answer: 4x + 12

(b) 10x - 5 oe **B1**

(b) Answer: 10x - 5

(c) -3x - 12 oe **B1**

(c) Answer: -3x - 12

Question 3

(a) expands both brackets, 3x + 6 and 2x + 10 oe **M1**

(a) 5x + 16 oe cao **A1**

(a) Answer: 5x + 16

(b) expands both brackets, 6x + 6 and 3x - 6 oe **M1**

(b) 9x oe cao **A1**

(b) Answer: 9x

Question 4

expands (x+2)(x-2) correctly to x^2 - 4 **M1**

cso, x^2 - 4 + 4 = x^2 shown with no errors **A1**

Answer: x^2 (shown)

Question 5

expands both sides correctly, 3x + 6 = 5x - 20 oe **M1**

correct method to collect terms, 26 = 2x oe **M1**

x = 13 cao **A1**

Answer: x = 13

Question 6

A, x^2 - 9 **B1**

Answer: A) x^2 - 9

Question 7

(a) show 5 times the cost of one bag: 5(2x + 3) or equivalent **M1**

(a) 5(2x + 3) cao **A1**

(a) Answer: 5(2x + 3)

(b) show multiplication by 5 applied to both terms: 5*2x and 5*3 shown **M1**

(b) state the intermediate expanded terms 10x and 15 explicitly **M1**

(b) 10x + 15 cao **A1**

(b) final simplified expression given as 10x + 15 oe **B1**

(b) Answer: 10x + 15

Question 8

takes out common factor 4, 4(x^2 - 4) **M1**

4(x - 2)(x + 2) cao, fully factorised **A1**

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

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