HIGHER

6.5 Expanding Triple Brackets: 10-minute Pack

EDEXCEL 1MA1 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Expand and simplify $(x + 2)(x + 3)$.
(This is a warm-up for expanding three brackets later in this worksheet.)

(Total for Question 1 is 2 marks)

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2 Which of the following is the correct expansion of $(x + 1)(x + 1)(x + 1)$?

- ☐ A) $x^3 + 1$
- ☐ B) $x^3 + 3x + 1$
- ☐ C) $x^3 + 3x^2 + 3x + 1$
- ☐ D) $x^3 + 3x^2 + 1$

(Total for Question 2 is 1 mark)

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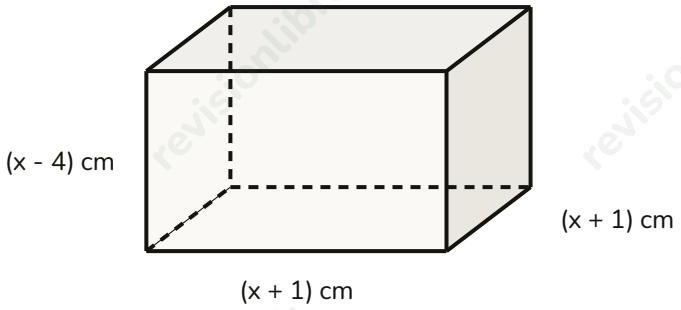
3 Expand and simplify $(x + 1)(x + 3)(x + 4)$, giving your answer in the form $x^3 + ax^2 + bx + c$.

(Total for Question 3 is 3 marks)

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4 A cuboid has length $(x + 1)$ cm, width $(x + 1)$ cm and height $(x - 4)$ cm. Find an expression for the volume of the cuboid in the form $ax^3 + bx^2 + cx + d$.

Diagram NOT accurately drawn



(Total for Question 4 is 3 marks)

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Mark scheme · 6.5 Expanding Triple Brackets: 10-minute Pack

Question 1

at least 3 of the 4 terms correct from the grid/FOIL expansion, e.g. $x^2 + 3x + 2x + 6$ (oe)	**M1**
$x^2 + 5x + 6$ (cao)	**A1**

Answer: $x^2 + 5x + 6$

Question 2

C selected (cao)	**B1**

Answer: C ($x^3 + 3x^2 + 3x + 1$)

Question 3

expands two of the three brackets correctly, e.g. $(x+3)(x+4) = x^2+7x+12$ oe	**M1**
(dep) multiplies their quadratic by the remaining bracket, with at least 4 of the 6 terms correct	**M1**
$x^3 + 8x^2 + 19x + 12$ cao	**A1**

Answer: $x^3 + 8x^2 + 19x + 12$

Question 4

multiplies two of the expressions	**M1**
multiplies by the third expression	**M1**
$x^3 - 2x^2 - 7x - 4$ cm³ cao	**A1**

Answer: $x^3 - 2x^2 - 7x - 4$ cm^3

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