2.6 Simplifying Algebra: 30-minute Pack

EDEXCEL 1MA1 · Calculator allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Simplify 3x + 2x + 4x

(Total for Question 1 is 1 mark)

2 Simplify 8g + 3g - 2g

(Total for Question 2 is 1 mark)

3 Simplify 15h - 9h - 3h

(Total for Question 3 is 1 mark)

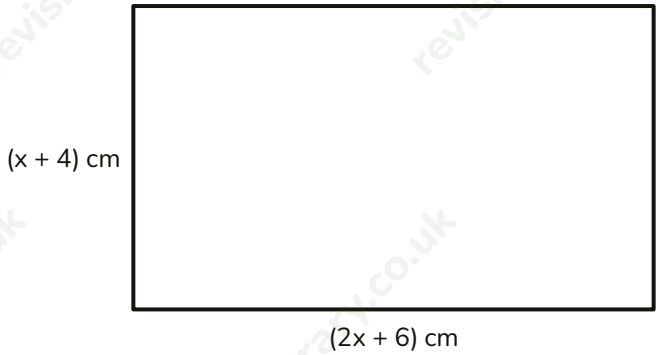
4 Expand and simplify 7(x + 1) + 3(x + 3)

(Total for Question 4 is 3 marks)

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5 A rectangle has length (2x + 6) cm and width (x + 4) cm. Write an expression, in its simplest form, for the perimeter of the rectangle.

Diagram NOT accurately drawn



(Total for Question 5 is 2 marks)

6 Simplify 4a + 5b + 5a + 2b + 8

(Total for Question 6 is 2 marks)

7 Expand 4(x + 3)

(Total for Question 7 is 2 marks)

8 Which of these expressions is equivalent to 3(2x - 5)?

- ☐ A) 6x - 5
- ☐ B) 6x - 15
- ☐ C) 5x - 15
- ☐ D) 6x - 2

(Total for Question 8 is 1 mark)

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9 Show that $4(x - 3) - 2(x - 5) = 2x - 2$

(Total for Question 9 is 2 marks)

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10 Three consecutive even numbers can be written as $2n$, $2n + 2$ and $2n + 4$, where n is an integer. Show that the sum of three consecutive even numbers is always a multiple of 6.

(Total for Question 10 is 3 marks)

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11 Expand and simplify $-3(2y - 5)$.

(Total for Question 11 is 2 marks)

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12 Simplify $(6x^2 y^{-1}) / (2x^{-1} y^2)$. Give your answer with positive indices.

(Total for Question 12 is 3 marks)

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Mark scheme · 2.6 Simplifying Algebra: 30-minute Pack

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

Question 1

9x cao **B1**

Answer: 9x

Question 2

9g cao **B1**

Answer: 9g

Question 3

3h cao **B1**

Answer: 3h

Question 4

expands one bracket correctly **M1**

expands both brackets correctly **M1**

10x + 16 cao **A1**

Answer: 10x + 16

Question 5

adds the length and width and doubles, or adds all four sides **M1**

(6x + 20) cm cao **A1**

Answer: (6x + 20) cm

Question 6

collects at least two like terms correctly **M1**

9a + 7b + 8 cao **A1**

Answer: 9a + 7b + 8

Question 7

4x or 12 seen (one term correctly multiplied out) **M1**

4x + 12 oe cao **A1**

Answer: 4x + 12

Question 8

B) 6x - 15 **B1**

Answer: B) 6x - 15

Question 9

4x - 12 and -2x + 10 (or 2x - 10) both seen (both brackets correctly expanded) **M1**

4x - 12 - 2x + 10 = 2x - 2 shown correctly, cso **A1**

Answer: 2x - 2 (shown)

Question 10

2n + (2n + 2) + (2n + 4) oe seen **M1**

6n + 6 correctly obtained and written as 6(n + 1) oe **M1**

valid conclusion given, e.g. n + 1 is an integer so 6(n + 1) is a multiple of 6, cso **A1**

Answer: 6(n + 1), a multiple of 6 (shown)

Question 11

multiply each term by -3, e.g. -3*2y and -3*(-5) shown **M1**

-6y + 15 cao **A1**

Answer: -6y + 15 (cao)

Question 12

divide coefficients 6/2 = 3 and subtract indices: $x^{2 - (-1)}$ and y^{-} $^{1 - 2}$ **M1**

obtain $3x^3\ y^{-3}$ (showing correct indices) **M1**

$3x^3 / y^3$ cao **A1**

Answer: $3x^3 / y^3$ (cao)

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