



2.6D Simplifying Algebra: Fluency and Exam Drill

EDEXCEL Edexcel 1MA1 · Calculator allowed · about 50 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

1 Simplify $5x + 3x$.

(Total for Question 1 is 1 mark)

2 Simplify $7y - 2y + 4y$.

(Total for Question 2 is 1 mark)

3 Simplify $3a + 2 - a + 5$.

(Total for Question 3 is 1 mark)

4 Simplify $4x - 3 + 2x + 9$.

(Total for Question 4 is 1 mark)

5 Expand and simplify $2(3x + 4)$.

(Total for Question 5 is 2 marks)

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

(Total for Question 6 is 2 marks)

7 Simplify $(2x)(3x)$.

(Total for Question 7 is 2 marks)

8 Simplify $4x^2 * 3x^3$.

(Total for Question 8 is 2 marks)

9 Simplify x^5 / x^2 .

(Total for Question 9 is 1 mark)

10 Simplify $(6x^3) / (3x)$.

(Total for Question 10 is 2 marks)

11 Simplify $(2a^3 * a^2) / a$.

(Total for Question 11 is 2 marks)

12 Simplify $(x^4 * x^{-2}) / x$.

(Total for Question 12 is 2 marks)

13 Simplify $2x(3x - 4) - x(x - 5)$.

(Total for Question 13 is 3 marks)

14 Given $f(t) = 4t^2 - 3t + 6$,

(a) Simplify $f(t) - (t^2 + 2t - 1)$. (2)

(b) Evaluate your result from part (a) at $t = 2$. (1)

(Total for Question 14 is 3 marks)

15 Simplify $(1/2)x^3 * 4x^{-1}$.

(Total for Question 15 is 2 marks)

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

(Total for Question 16 is 3 marks)

Mark scheme · 2.6D Simplifying Algebra: Fluency and Exam Drill

Question 1

- **B1** $8x$ **cao**
- **Answer:** $8x$ (**cao**)

Question 2

- **B1** $9y$ **cao**
- **Answer:** $9y$ (**cao**)

Question 3

- **B1** $2a + 7$ **cao**
- **Answer:** $2a + 7$ (**cao**)

Question 4

- **B1** $6x + 6$ **cao**
- **Answer:** $6x + 6$ (**cao**)

Question 5

- **M1** correct multiplication of both terms, e.g. $2 \cdot 3x$ and $2 \cdot 4$ shown
- **A1** $6x + 8$ **cao**
- **Answer:** $6x + 8$ (**cao**)

Question 6

- **M1** multiply each term by -3 , e.g. $-3 \cdot 2y$ and $-3 \cdot (-5)$ shown
- **A1** $-6y + 15$ **cao**
- **Answer:** $-6y + 15$ (**cao**)

Question 7

- **M1** multiply coefficients and use index law $x^1 \cdot x^1 = x^2$
- **A1** $6x^2$ **cao**
- **Answer:** $6x^2$ (**cao**)

Question 8

- **M1** multiply coefficients $4 \cdot 3$ and add indices $2 + 3$
- **A1** $12x^5$ **cao**
- **Answer:** $12x^5$ (**cao**)

Question 9

- **B1** x^3 **cao** (use of index subtraction $5 - 2$)
- **Answer:** x^3 (**cao**)

Question 10

- **M1** divide coefficients $6/3$ and subtract indices $3 - 1$
- **A1** $2x^2$ **cao**
- **Answer:** $2x^2$ (**cao**)

Question 11

- **M1** multiply indices for a : $3 + 2 = 5$ then divide by a (subtract 1)
- **A1** $2a^4$ **cao**
- **Answer:** $2a^4$ (**cao**)

Question 12

- **M1** use index laws: $x^4 * x^{-2} = x^{4+(-2)} = x^2$, then divide by x (subtract 1)
- **A1** x cao
- **Answer: x (cao)**

Question 13

- **M1** expand $2x(3x - 4)$ to $6x^2 - 8x$
- **M1** expand $x(x - 5)$ to $x^2 - 5x$ and subtract from previous expression
- **A1** $5x^2 - 3x$ cao
- **Answer: $5x^2 - 3x$ (cao)**

Question 14

- (a) **M1** subtract like terms: $4t^2 - t^2$ and $-3t - 2t$ and $6 - (-1)$
- (a) **A1** $3t^2 - 5t + 7$ cao
- (a) **Answer: $3t^2 - 5t + 7$ (cao)**
- (b) **B1** 9 cao
- (b) **Answer: 9 (cao)**

Question 15

- **M1** multiply coefficients $(1/2)*4 = 2$ and add indices $3 + (-1) = 2$
- **A1** $2x^2$ cao
- **Answer: $2x^2$ (cao)**

Question 16

- **M1** divide coefficients $6/2 = 3$ and subtract indices: $x^2 - (-1)$ and $y^{-1} - 2$
- **M1** obtain $3x^3 y^{-3}$ (showing correct indices)
- **A1** $3x^3 / y^3$ cao
- **Answer: $3x^3 / y^3$ (cao)**