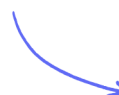


Expanding Brackets

Expanding & Simplifying Single Brackets / Expanding Double Brackets / Expanding Triple Brackets

Easy (16 questions)	/27
Medium (18 questions)	/36
Hard (22 questions)	/69
Total Marks	/132

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Easy Questions

1 Expand $3(2y - 5)$

(1 mark)

2 (a) Expand $4(3x + 5)$

(1 mark)

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

(2 marks)

3 (a) Expand $3(2 + t)$

(1 mark)

(b) Expand $3x(2x + 5)$

(2 marks)

4 Expand $4(x + 2)$

(1 mark)

5 Expand $2m(m + 3)$

(1 mark)

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

(2 marks)

7 (a) Expand $x(x + 2)$

(1 mark)

(b) Expand and simplify $3(y + 2) + 4(x - 1)$

(2 marks)

8 Expand $x(x - 3)$

(1 mark)

9 Expand and simplify $3(y - 2) + 5(2y + 1)$

(2 marks)

10 Expand $3y(4y - 3)$

(1 mark)

11 Expand and simplify $3(x + 4) + 2(5x - 1)$

(2 marks)

12 Expand $7(x + 5)$

(1 mark)

13 Expand $4t(3t - 2)$

(2 marks)

14 Expand $4x^2(3x + 5)$

A. $32x^3$

B. $12x^3 + 20x^2$

C. $7x^3 + 9x^2$

D. $12x^2 + 5$

(1 mark)

15 $(2x - 4)(3x + 5)$ is expanded and simplified.
Choose the term which is part of the answer.

A. $2x$

- B.** $-2x$
- C.** $22x$
- D.** $-22x$

(1 mark)

16 Multiply out and simplify $(x - 8)^2$

(2 marks)

Medium Questions

1 Expand and simplify $3(m + 4) - 2(4m + 1)$

(2 marks)

2 Expand and simplify $5(p + 3) - 2(1 - 2p)$

(2 marks)

3 Expand and simplify $(p + 9)(p - 4)$

(2 marks)

4 Expand and simplify $(x + 4)(x + 6)$

(2 marks)

5 Expand and simplify $(m + 3)(m + 10)$

(2 marks)

6 Expand and simplify $(x - 5)(x + 3)$

(2 marks)

7 Expand and simplify $(y - 2)(y - 5)$

(2 marks)

8 Expand and simplify $(y + 2)(y + 5)$

(2 marks)

9 Expand and simplify $(m + 7)(m + 3)$

(2 marks)

10 Expand and simplify $(2x + 1)(x - 4)$

(2 marks)

11 Expand and simplify $(2x + 3)(x - 8)$

(2 marks)

12 Expand and simplify $(2t - 3)(t + 5)$

(2 marks)

13 Expand and simplify $(w - 5)^2$

(2 marks)

14 Expand and simplify $(y + 4)(2 - y)$

(2 marks)

15 Expand and simplify $3x(2x + 3) - x(3x + 5)$

(2 marks)

16 Expand and simplify fully $4(2c + 3) - (5c - 1)$

(2 marks)

17 Expand and simplify

$$(3y - z)(2y + 5z)$$

(2 marks)

18 Expand and simplify $(p + 6)(p - 2)$

(2 marks)

Hard Questions

- 1 Show that $(x + 1)(x + 2)(x + 3)$ can be written in the form $ax^3 + bx^2 + cx + d$ where a, b, c and d are positive integers.

(3 marks)

- 2 Show that

$$(3x - 1)(x + 5)(4x - 3) = 12x^3 + 47x^2 - 62x + 15$$

for all values of x .

(3 marks)

- 3 Simplify fully $(\sqrt{a} + \sqrt{4b})(\sqrt{a} - 2\sqrt{b})$

(3 marks)

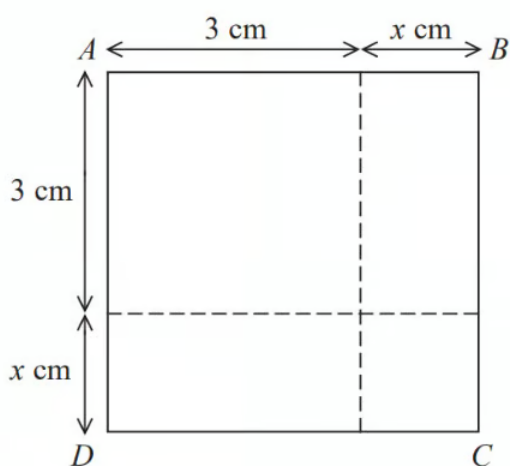
- 4 (a) Show that $(2x + 1)(x + 3)(3x + 7)$ can be written in the form $ax^3 + bx^2 + cx + d$ where a, b, c and d are integers.

(3 marks)

(b) Solve $(1 - x)^2 < \frac{9}{25}$

(3 marks)

5



The area of square $ABCD$ is 10 cm^2 .
Show that $x^2 + 6x = 1$

(3 marks)

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

(3 marks)

- 7 Given that $(8 - \sqrt{x})(5 + \sqrt{x}) = y\sqrt{x} + 21$ where x is a prime number and y is an integer, find the value of x and the value of y . Show each stage of your working clearly.

$x = \dots\dots\dots$

$y = \dots\dots\dots$

(3 marks)

- 8 Solve $(2x + 5)^2 = (2x + 3)(2x - 1)$

$x = \dots\dots\dots$

(3 marks)

- 9 The functions f and g are defined as

$$f(x) = x^2 + 6$$

$$g(x) = x - 10$$

Solve the equation $fg(x) = f(x)$

Show clear algebraic working.

(3 marks)

- 10 Expand and simplify $(4x + 1)(x - 3)(5x + 6)$

(3 marks)

11 Show that $x(x - 1)(x + 1) = x^3 - x$

(1 mark)

12 $(x + a)(x + 3a) \equiv x^2 + bx + 75$

Work out the **two** possible values of b .

(3 marks)

13 Expand and simplify fully $(x - 3)(x + 2)(x + 5)$

(3 marks)

14 s and t are **positive** integers.

$(x + s)(x - t)$ is expanded and simplified.

The answer is $x^2 + kx - 40$ where k is a positive integer.

Work out the **smallest** possible value of k .

(2 marks)

15 Here is an identity.

$$a(3x - 10) \equiv 21x + 2b$$

Work out the values of a and b .

(3 marks)

16 $(x + 5)(x + 2)(x + a) \equiv x^3 + bx^2 + cx - 30$

Work out the values of the integers a , b and c .

$a =$

$b =$

$c =$

(3 marks)

17 Expand and simplify $(3x^2 + 2)(2x + 5) - 6x(x^2 - 3)$

(4 marks)

18 Expand and simplify $(x - 4)(2x + 3y)^2$

(4 marks)

19 Expand and simplify.

$$(x + 1)(x - 1)(x + 2)$$

(3 marks)

20 $(x + a)(x + 3)(2x + 1) = bx^3 + cx^2 + dx - 12$

Find the value of a , b , c and d .

$$a = \dots\dots\dots$$

$$b = \dots\dots\dots$$

$$c = \dots\dots\dots$$

$$d = \dots\dots\dots$$

(4 marks)

21 Expand and simplify.

$$(2x - 1)(x + 5)(3x - 2)$$

(4 marks)

22 $(x + 3)(x - 4)(x + 5)$ is identical to $x^3 + ax^2 - 17x + b$

Find the value of a and the value of b .

$a =$

$b =$

(2 marks)