

GCSE Maths: Expanding single brackets (Higher): answers

GCSE Maths - Algebra Basics - Higher - Lesson 7.4

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch07-algebra-basics/higher/expanding-single-brackets/

Exercise 7D Expanding single brackets Non-calculator

1 Expand each bracket.

(a) $4(x + 3)$

Answer: $4x + 12$

(b) $5(y - 2)$

Answer: $5y - 10$

(c) $2(3a + 1)$

Answer: $6a + 2$

(d) $7(2 - b)$

Answer: $-7b + 14$

(e) $6(2p + 3q)$

Answer: $12p + 18q$

(f) $9(1 + 2c)$

Answer: $18c + 9$

2 Expand each bracket.

(a) $x(x + 5)$

Answer: $x^2 + 5x$

(b) $y(y - 3)$

Answer: $y^2 - 3y$

(c) $a(2a + 1)$

Answer: $2a^2 + a$

(d) $m(4 - m)$

Answer: $-m^2 + 4m$

3 Expand each bracket.

(a) $3x(x + 2)$

Answer: $3x^2 + 6x$

(b) $2a(a - 4)$

Answer: $2a^2 - 8a$

(c) $5y(2y + 3)$

Answer: $10y^2 + 15y$

(d) $4m(3m - 1)$

Answer: $12m^2 - 4m$

4 Expand each bracket.

(a) $-2(x + 3)$

Answer: $-2x - 6$

(b) $-5(a - 1)$

Answer: $-5a + 5$

(c) $-x(x - 4)$

Answer: $-x^2 + 4x$

(d) $-3(2y - 5)$

Answer: $-6y + 15$

5 Expand and simplify.

(a) $3(x + 1) + 2(x + 4)$

Answer: $5x + 11$

(b) $4(a + 2) + 3(a - 1)$

Answer: $7a + 5$

(c) $5(y + 3) + 2(y - 6)$

Answer: $7y + 3$

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

Answer: $11x + 12$

6 Expand and simplify.

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

Answer: $2x + 7$

(b) $4(a + 5) - 2(a + 3)$

Answer: $2a + 14$

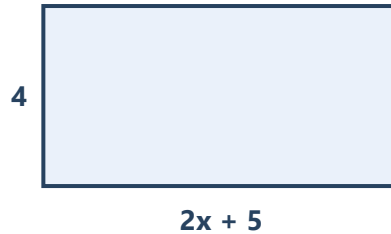
(c) $7(y + 1) - 4(y - 2)$

Answer: $3y + 15$

(d) $3(2m + 1) - 2(m - 4)$

Answer: $4m + 11$

- 7 The rectangle has width 4 cm and length $(2x + 5)$ cm. Write an expression for its area and expand the bracket.



Answer: $8x + 20 \text{ cm}^2$

- 8 An adult ticket costs $\pounds a$. A child ticket costs $\pounds 5$ less than an adult ticket. A family buys 2 adult tickets and 3 child tickets. Show that the total cost is $\pounds(5a - 15)$, by writing an expression and simplifying it.

Answer: $5a - 15$

- 9 Show that $3(x + 4) - 3x$ is always equal to 12, whatever the value of x .

Answer: 12

- 10 Sam expands $5(x - 3)$ and gets $5x - 3$. Find his mistake and write the correct answer.

Answer: He did not multiply the 3 by 5. The answer is $5x - 15$

- 11 Zara says that $-3(x - 2) = -3x - 6$. Is she right? Explain.

Answer: No. The correct answer is $-3x + 6$, because $-3 \times -2 = +6$.

- 12 Expand and simplify each expression.

(a) $x(x + 4) - 2(x - 3)$

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

(b) $2a(a + 1) + 3(a - 5)$

Answer: $2a^2 + 5a - 15$

(c) $y(2y - 1) - y(y + 3)$

Answer: $y^2 - 4y$

- 13 Expand each bracket.

(a) $2xy(3x - 4y)$

Answer: $6x^2y - 8xy^2$

(b) $3ab(a + 2b)$

Answer: $3a^2b + 6ab^2$

(c) $-2p(p^2 - pq + 3q^2)$

Answer: $-2p^3 + 2p^2q - 6pq^2$

(d) $x^2(x - y)$

Answer: $x^3 - x^2y$

14 Expand and simplify.

(a) $2x(3x - 1) - x(x - 4)$

Answer: $5x^2 + 2x$

(b) $3a(2a - b) + 2b(a + 3b)$

Answer: $6a^2 - ab + 6b^2$

(c) $4(x^2 + 2x) - x(3x - 5)$

Answer: $x^2 + 13x$

15 Show that $3(2x + 1) - 2(3x - 4)$ is always equal to 11, and that $x(x + 5) - 5(x - 2) - x^2$ is always equal to 10.

(a) $3(2x + 1) - 2(3x - 4) = 11$

Answer: 11

(b) $x(x + 5) - 5(x - 2) - x^2 = 10$

Answer: 10

16 Find the missing term in each statement.

(a) $3(x + ?) = 3x + 21$

Answer: 7

(b) $?(2x - 5) = 8x - 20$

Answer: 4

(c) $x(? + 7) = x^2 + 7x$

Answer: x