

GCSE Maths: Simplifying: collecting like terms (Higher): answers

GCSE Maths - Algebra Basics - Higher - Lesson 7.2

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/simplifying-collecting-like-terms/

Exercise 7B Collecting like terms Non-calculator

1 Simplify each expression.

(a) $3x + 4x$

Answer: $7x$

(b) $9y - 2y$

Answer: $7y$

(c) $5a + a$

Answer: $6a$

(d) $8m - 3m$

Answer: $5m$

(e) $6p - p - 2p$

Answer: $3p$

(f) $7t + 2t - 4t$

Answer: $5t$

2 Simplify each expression.

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

Answer: $7x + 7$

(b) $7y + 2 - 3y + 5$

Answer: $4y + 7$

(c) $4a - 1 + a - 6$

Answer: $5a - 7$

(d) $10 + 3b - 4 + 2b$

Answer: $5b + 6$

3 Simplify each expression.

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

Answer: $7a + 7b$

(b) $5x + 2y - 2x + 3y$

Answer: $3x + 5y$

(c) $6p - 3q + p + 4q$

Answer: $7p + q$

(d) $7m - 2n - 3m - n$

Answer: $4m - 3n$

4 Simplify each expression.

(a) $-3x + 7x + 2$

Answer: $4x + 2$

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

Answer: $-3a + 4$

(c) $x - 6 - 3x + 2$

Answer: $-2x - 4$

(d) $-2y - 3y + 9$

Answer: $-5y + 9$

5 Simplify each expression.

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

Answer: $3x^2 + 4x$

(b) $3x^2 + 5 - x^2 - 2$

Answer: $2x^2 + 3$

(c) $4a^2 - a + a^2 + 6a$

Answer: $5a^2 + 5a$

(d) $5y^2 + 2y - 4y^2 - 7y$

Answer: $y^2 - 5y$

6 Simplify each expression.

(a) $3xy + 2xy$

Answer: $5xy$

(b) $5ab - 2ab$

Answer: $3ab$

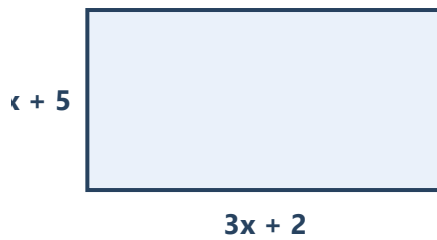
(c) $4pq + p + 3pq - p$

Answer: $7pq$

(d) $2xy + 3x + 5xy - x$

Answer: $7xy + 2x$

7 The rectangle has length $(3x + 2)$ cm and width $(x + 5)$ cm. Write down and simplify an expression for its perimeter.



Answer: $8x + 14$ cm

- 8** Apples cost a pence each and oranges cost o pence each. Tom buys 4 apples and 3 oranges. Jo buys 2 apples and 5 oranges. Write a simplified expression for the total cost, in pence, of what they buy together.

Answer: $6a + 8o$ pence

- 9** Alex says that $3x + 4y = 7xy$. Use $x = 2$ and $y = 1$ to show that Alex is wrong, and write down what $3x + 4y$ simplifies to.

Answer: $3x + 4y = 10$ but $7xy = 14$. It cannot be simplified.

- 10** Find the missing term in each statement.

(a) $5x + ? = 9x$

Answer: $4x$

(b) $7y - ? = 2y$

Answer: $5y$

(c) $? + 3a^2 = 8a^2$

Answer: $5a^2$

(d) $4x + 3y + ? = 4x + 8y$

Answer: $5y$

- 11** Simplify each expression.

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

Answer: $3x^2y + 4xy^2$

(b) $5ab^2 - 2a^2b + 3ab^2 + a^2b$

Answer: $-a^2b + 8ab^2$

(c) $3x^2 + 2xy - x^2 + 5y^2 - 3xy + y^2$

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

- 12** Find the values of the missing numbers p and q so that $3x^2 + px + 5 + qx^2 - 2x - 8$ simplifies to $7x^2 + 4x - 3$.

Answer: $p = 6$ and $q = 4$

- 13** The cost of a school trip is $\pounds c$ for a coach plus $\pounds t$ for each ticket. Class 9A books a coach and 12 tickets. Class 9B books a coach and 15 tickets. Write a simplified expression for the total cost of both trips.

Answer: $2c + 27t$

