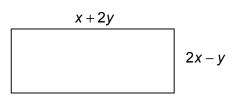
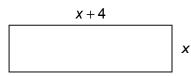
GCSE (9-1) MATHEMATICS

Topic Check In - 6.01 Algebraic expressions

- 1. Simplify 2x + 3y x + 2y.
- 2. Multiply out the brackets from 3(2x + y 4z).
- 3. Simplify $\frac{9a^4}{3a^2}$.
- 4. Factorise 4x + 12y.
- 5. Write down an expression for the perimeter of this rectangle. Simplify your expression.



6. Show that the area of the rectangle below can be written as $x^2 + 4x$.



- 7. Robin says that $30x + 10x^2$ can be written as $5(6x + 2x^2)$ in its simplified form. Explain why this has not been fully simplified.
- 8. Explain why (3x 4) + x (4x 6) is a constant number whatever the value of x.
- 9. Shape A has an area of 3(x + 4) and shape B has an area of 5(2x 1). If the two shapes are joined together so that they do not overlap, what is the area of the new shape? Write your answer in its simplest form.
- 10. A regular pentagon has a perimeter given by the expression 40x + 30. Write an expression for the length of each side.







Extension

A 3 \times 3 magic square is a square grid with each row and column having 3 cells. The sum of each row, each column and each diagonal adds to the same number.

Complete this magic square.

3 <i>x</i> + 2 <i>y</i>	-(2x+3y)	4 <i>y</i> – x
3y – 4x		
	2x + 5y	





GCSE (9-1) MATHEMATICS

Answers

- 1. *x*+5*y*
- 2. 6x + 3y 12z
- 3. 3*a*²
- 4. 4(x+3y)
- 5. 2(3x + y)
- 6. $x(x+4) = x^2 + 4x$
- 7. Factorises fully to 10x(3+x).
- 8. Independent of x because the expression simplifies to 2 with no x term.
- 9. 13*x* + 7
- 10. 8*x* + 6

Extension

3 <i>x</i> + 2 <i>y</i>	-(2x+3y)	4 <i>y</i> – x
3y – 4x	У	4 <i>x – y</i>
x – 2y	2 <i>x</i> + 5 <i>y</i>	- 3 <i>x</i>



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GCSE (9-1) MATHEMATICS

Assessment Objective	Qu.	Торіс	R	Α	G
AO1	1	Simplify an algebraic expression.			
AO1	2	Expand a single bracket and collect like terms.			
AO1	3	Simplify a quotient.			
AO1	4	Factorise into a single bracket.			
AO1	5	Write and simply an expression for a perimeter.			
AO2	6	Factorise an expression for a simple area.			
AO2	7	Simplify expressions fully.			
AO2	8	Simplify algebraic expressions.			
AO3	9	Translate a word problem into a simplified algebraic expression.			
AO3	10	Translate a perimeter problem into a simplified algebraic expression.			

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