



Question	Type of Question	Marks Awarded		Marks Available	Objective Covered	RAG (Pre)	RAG (Post)
1	Skill			2	I understand and can use the rules of algebra.		
2	Skill			3	I can form expressions using algebraic notation.		
3	Skill			4	I can collect like terms when adding and subtracting.		
4	Skill			3	I can collect like terms when multiplying and dividing.		
5	Skill			6	I can expand single brackets.		
6	Skill			4	I can expand single brackets then collect like terms.		
7	Skill			2	I can factorise expressions with a number factor.		
8	Skill			2	I can factorise expressions with an algebraic factor.		
9	Skill			3	I can write algebraic expressions with decimal coefficients as fractions.		
10	Mastery			3	I understand and can use the rules of algebra.		
11	Mastery			2	I can form expressions using algebraic notation.		
12	Mastery			6	I can collect like terms when adding and subtracting.		
13	Mastery			3	I can collect like terms when multiplying and dividing.		
14	Mastery			2	I can expand single brackets.		
15	Mastery			6	I can expand single brackets then collect like terms.		
16	Mastery			2	I can factorise expressions with a number factor.		
17	Mastery			4	I can factorise expressions with an algebraic factor.		
18	Mastery			3	I can write algebraic expressions with decimal coefficients as fractions.		
19	Greater Depth			3	I understand and can use the rules of algebra.		
20	Greater Depth			3	I can form expressions using algebraic notation.		
21	Greater Depth			2	I can collect like terms when adding and subtracting.		
22	Greater Depth			3	I can collect like terms when multiplying and dividing.		
23	Greater Depth			3	I can expand single brackets.		
24	Greater Depth			4	I can expand single brackets then collect like terms.		
25	Greater Depth			1	I can factorise expressions with a number factor.		
26	Greater Depth			2	I can factorise expressions with an algebraic factor.		
27	Greater Depth			2	I can write algebraic expressions with decimal coefficients as fractions.		

Skill	Mastery	Greater Depth	Total	%
$\frac{\square}{29}$ $\frac{\square}{29}$	$\frac{\square}{31}$ $\frac{\square}{31}$	$\frac{\square}{23}$ $\frac{\square}{23}$	$\frac{\square}{83}$ $\frac{\square}{83}$	

<p>1. Fill in the gaps to make these algebraic statements true.</p> <p>a) <math>m + n + o = \underline{\quad} + \underline{\quad} + \underline{\quad} = p</math> Use the letters m, n and o.</p> <p>b) <math>\underline{\hspace{2cm}} = fed = g</math> Use the letters d, e and f.</p> <p>S (2 marks)</p>	<p>a) <math>m + n + o = \underline{\quad} + \underline{\quad} + \underline{\quad} = p</math></p> <p>b) <math>\underline{\hspace{2cm}} = fed = g</math></p>
<p>2. Write down an algebraic expression for each of the following:</p> <p>a) Subtract <math>4b</math> from the sum of <math>3c</math> and <math>9</math>.</p> <p>b) The sum of the product of <math>2</math> and <math>e</math> and the product of <math>3</math> and <math>d</math>.</p> <p>c) Divide the sum of <math>x</math> and <math>7</math> by <math>2</math>.</p> <p>S(3 marks)</p>	
<p>3. Simplify the following by collecting like terms:</p> <p>a) <math>9k + 5k</math></p> <p>b) <math>7.3y - 2.9y + 10</math></p> <p>c) <math>14x + 10y + 4x - 13y</math></p> <p>d) <math>3e - 4f + 9e - 8f</math></p> <p>S (4 marks)</p>	
<p>4. Simplify:</p> <p>a) <math>6a \times 5a</math></p> <p>b) <math>3c \times (-7d)</math></p> <p>c) <math>\frac{24e^3}{1.5}</math></p> <p>S (3 marks)</p>	

5. Expand these brackets:

- a)  $3(x + 4)$
- b)  $7(3y - 4z)$
- c)  $b(4a - 4)$
- d)  $-(12h - 4)$

S(6 marks)

6. Expand these brackets and then simplify:

- a)  $4(x + 2) + 5(x + 7)$
- b)  $8(y - 3) + 3(2y - 1)$

S(4 marks)

7. Factorise:

- a)  $12x + 15$
- b)  $21k - 35$

S(2 marks)

8. Factorise:

- a)  $3k + 5k^2$
- b)  $7z^3 - yz$

S(2 marks)

9. Simplify by writing these decimal coefficients as fractional coefficients.

- a)  $0.2x$
- b)  $0.05y$
- c)  $2.5z$

S (3 marks)

10. Explain why the following is true. Explain each step clearly.

$$36 \div 9 = 36 \times \frac{1}{9} = \frac{36}{9} = 4$$

M (3 marks)

11. I am going to buy some 9p stamps and some 10p stamps.

I want to spend exactly 66p. Write this as a symbol sentence and find whole number values that satisfy your sentence.

M(2 marks)

12. a) Simplify  $-6a + (-4b) + 3a - (-10b)$

b) Simplify  $9m^2 - 6m + 4 + (-4m^2) - (-5m) - 1$

c) Find the sum of  $4.9k + 2.7l$  and  $1.1k$  and  $2.6l$

M (6 marks)

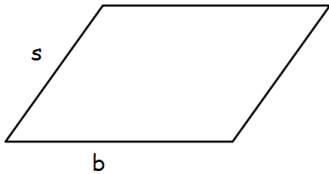
13. Find the product:

- a)  $\frac{1}{4}a \times 20a$
- b)  $2.7a^3 \times 2.1a^2$

FURTHER CHALLENGE  
OPTIONAL

M (3 marks)

14. John is trying to calculate the perimeter of the parallelogram. The parallelogram has base  $b$  and slanted height  $s$ .



- a) Write an expression for the perimeter. Your expression should be in the form  $a(b + s)$  where  $a$  is a whole number.
- b) Expand your expression to find an expression for the perimeter of the rectangle in terms of  $b$  and  $s$ .

M (2 marks)

15. Expand these brackets and then simplify:

- a)  $-6(2x + 4) - 3(x - 4)$
- b)  $10y - 2.5(2 - 2y) + 4(y - 1)$
- c)  $z(6z + 2) - 3z(2z + 4)$

M(6 marks)

16. Sarah says  $75x + 50$  can be written as  $5(15x + 10)$ .  
Jim thinks  $75x + 50$  can be written as  $25(3x + 2)$ .  
Decide who is correct and give a reason for your answer.

M(2 marks)

17. Factorise these expressions completely:

- a)  $6ab^2 + 8b$
- b)  $2\pi r^2 + 2\pi r$

M(4 marks)

18. Simplify by writing any decimal coefficients as fractional coefficients. Write your answer as simply as possible.

- a)  $-0.2y \times 4$
- b)  $\frac{1}{5}a + 0.25a$
- c)  $6.2y - 7.2y$

M (3 marks)

19. Correct the following incorrect algebraic notation.

Explain the mistake that has been made.

a)  $-4a = 4 \times -a = -a \times -a \times -a \times -a$

b)  $\frac{1}{4}ab^2 = \left(\frac{1}{4} \times a\right) + \left(\frac{1}{4} \times b \times b\right)$

c)  $x + 4 \times y = y(x + 4)$

FURTHER CHALLENGE  
OPTIONAL

G(3 marks)

20. Ethan went shopping and bought a jacket for £5y and a tie that cost £2y less than the jacket. He had £18y left. How much money did he have at first?

FURTHER CHALLENGE  
OPTIONAL

G(3 marks)

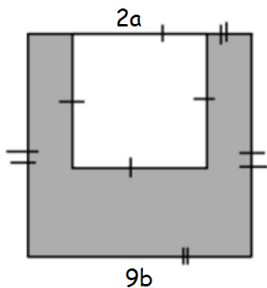
21. Simplify:

$$3y^2 + 4 - (6y^2 + 10y - 6)$$

FURTHER CHALLENGE  
OPTIONAL

G (2 marks)

22. Find an expression for the area of the shaded section in terms of a and b.



FURTHER CHALLENGE  
OPTIONAL

G (3 marks)

23. Amy and her mum are working on a puzzle. They are told that Zoe is 'a' years old and that Zach is 3 years older than Zoe.

- a) Create an expression that shows the sum of Zoe and Zach's ages.

Zara is 4 times as old as the sum of Zoe and Zach's age.

- b) Write an expression for Zara's age. Use brackets in your expression.  
c) Expand the brackets to find an expression for Zara's age in terms of a.

G (3 marks)

FURTHER CHALLENGE  
OPTIONAL

24. Expand then simplify these brackets:

- a)  $4[6m - (20 + 40m)]$   
b)  $5\{d + 5[d - 3(d - e)]\}$

G(4 marks)

FURTHER CHALLENGE  
OPTIONAL

25. Show, by factorising, that  $35k + 60$  is always a multiple of 5.

G(1 mark)

FURTHER CHALLENGE  
OPTIONAL

26. Factorise this expression completely:

$$x^2y^3z + xy^2z^2$$

G (2 marks)

FURTHER CHALLENGE  
OPTIONAL

27. Simplify the following. Give your answer as a single fraction.

$$4y + 6.5y - (-3.25y)$$

G(2 marks)

FURTHER CHALLENGE  
OPTIONAL