

KS3 – Algebra Basics

Section A – Algebraic Notation

Q1 (4 marks)

Write each expression using algebraic notation.

a) $x \times 5$

b) $3 \times y$

c) $a \times a$

d) $b \times b \times b$

Q2 (4 marks)

Write each expression without using the multiplication sign.

a) $7 \times p$

b) $4 \times m \times n$

c) $2 \times x \times x$

d) $6 \times a \times b \times b$

Q3 (3 marks)

Write an algebraic expression for each statement.

a) 5 more than x

b) 3 less than y

c) 4 times n

Q4 (3 marks)

Write an algebraic expression for each statement.

a) a number, x , divided by 6

b) twice a number, p , then add 7

c) subtract 5 from three times a number, t

Challenge

Q5 (2 marks)

A rectangle has length x cm and width 5 cm.

Write an expression for the perimeter of the rectangle.

Section B – Collecting Like Terms

Q6 (4 marks)

Simplify.

a) $3x + 5x$

b) $9a - 4a$

c) $7y + 2y + y$

d) $12m - 5m + 2m$

Q7 (4 marks)

Simplify.

a) $4x + 3 + 2x$

b) $7a + 5 - 3a + 2$

c) $9p - 4 + 2p + 7$

d) $6y + 8 - y - 3$

Q8 (3 marks)

Simplify.

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

b) $8a - 2b - 3a + 5b$

c) $4m + 7n - 6m + 2n$

Q9 (3 marks)

Simplify.

a) $3x^2 + 5x + 4x^2 - 2x$

b) $7a^2 - 3a + 2a^2 + 6a$

c) $6p^2 + 4p - p^2 - 9p$

Challenge

Q10 (2 marks)

Simplify fully.

$4x + 3y - 2x + 5 - y + 7$

Section C – Expanding Brackets

Q11 (4 marks)

Expand.

a) $3(x + 4)$

b) $5(y + 2)$

c) $4(a - 3)$

d) $6(p - 5)$

Q12 (3 marks)

Expand and simplify.

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

b) $4(y - 2) + 2y$

c) $3(a + 4) - a$

Q13 (3 marks)

Expand and simplify.

a) $5(2x + 3)$

b) $4(3y - 2)$

c) $6(2a + 5)$

Q14 (3 marks)

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Expand and simplify.

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

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

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

Challenge

Q15 (3 marks)

Expand and simplify fully.

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

Section D – Factorising

Q16 (4 marks)

Factorise.

a) $3x + 12$

b) $5y + 20$

c) $4a - 16$

d) $7p - 21$

Q17 (3 marks)

Factorise fully.

a) $6x + 9$

b) $8y - 12$

c) $15a + 25$

Q18 (3 marks)

Factorise fully.

a) $12x + 18$

b) $14y - 21$

c) $20a + 30$

Q19 (3 marks)

Factorise fully.

a) $6x^2 + 9x$

b) $8y^2 - 12y$

c) $15a^2 + 20a$

Challenge

Q20 (3 marks)

Factorise fully.

a) $18x^2 + 24x$

b) $21y^2 - 14y$

c) $16a^2 + 24a$

Total: ____ / 64

Percentage: ____%