FOUNDATION & HIGHER

SAME AT BOTH TIERS

Name ..... Class .....

A3: Algebra vocabulary

Expressions, equations, formulae, identities, inequalities, terms and factors

20 marks · 25 minutes · Non-calculator

1) Choose a word from the box to describe each one. You may use a word more than once.

expression	equation	formula	identity	inequality

(a) $3x + 2 = 11$

.....

(1)

(b) $4(x + 1) \equiv 4x + 4$

.....

(1)

(c) $A = lw$

.....

(1)

(d) $5y - 3$

.....

(1)

(e) $2x - 1 < 9$

.....

(1)

[Question 1: 5 marks]

2) (a) How many terms are in the expression $6x^2 + 3x - 8$?

.....

(1)

(b) Write down two factors of $6xy$, other than 1 and $6xy$.

.....

(1)

(c) Write down an inequality that $x = 4$ satisfies but $x = 5$ does not.

.....

(1)

[Question 2: 3 marks]

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3) Write the correct sign, = or $\equiv$, in each gap.

(a) $3(y - 2)$ _____ $3y - 6$

(1)

(b) $3y - 6$ _____ 9

(1)

[Question 3: 2 marks]

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4) Here is an expression: $5x^3 - 2x + 7$

(a) What is the coefficient of x^3?

.....

(1)

(b) Write down the term in x.

.....

(1)

[Question 4: 2 marks]

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5) Circle all of the factors of $12x^2y$

3 $4x$ $5y$ xy $12x^2y$ $7x$

[Question 5: 2 marks]

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6) Is each statement true for **all** values of x, **some** values of x or **no** values of x?

(a) $2x + 3 = 11$

.....

(1)

(b) $3(x + 2) = 3x + 6$

.....

(1)

(c) $x + 1 = x + 2$

.....

(1)

[Question 6: 3 marks]

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7) Write down an identity that uses the $\equiv$ sign and includes x^2.

.....

[Question 7: 1 marks]

8) Explain why $x^2 = 9$ is an equation and not an identity.

.....

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[Question 8: 1 marks]

9) Write down a formula for the perimeter, P, of a square with side length s.

.....

[Question 9: 1 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	(a) equation (b) identity (c) formula (d) expression (e) inequality	B1 each.
2	(a) 3 (b) e.g. 2, $3x$ (c) e.g. $x < 5$	B1 each. (b) any two of 2, 3, 6, x, y, $2x$, $3y$, xy, ... (c) accept $x \leqslant 4$ or any correct.
3	(a) $\equiv$ (b) =	B1 each.
4	(a) 5 (b) $-2x$	B1 each.
5	3, $4x$, xy, $12x^2y$	B2 all four and no others (B1 for 3 correct, or 4 correct with one wrong).
6	(a) some (b) all (c) no	B1 each.
7	e.g. $x \times x \equiv x^2$	B1 any correct identity.
8	It is only true for some values ($x = \pm 3$)	B1.
9	$P = 4s$	B1.