2.4 Introduction to Algebraic Notation: 1-hour Pack

Calculators not allowed · about 60 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Write each expression in the simplest form by collecting like terms.

(a) 2x + 3x **(1)**

(b) 7y - 2y **(1)**

2 Simplify -2q + 7 - 2q + 3c + 4.

(3)

3 Simplify 3x + 8b - 6x - 4b.

(2)

4 Simplify 8yq ÷ 2q.

(2)

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5 Is 4x + 4m + 2 an expression, an equation or a formula? Give a reason.

(2)

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6 Write each of these in a simpler form, without multiplication or division signs where possible.

(a) 4 x (q + c)

(b) 4 x q x q x q

(2)

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7 Simplify 72yq ÷ 9q.

(2)

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8 Simplify 48mn ÷ 6n.

(2)

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9 I think of a number, n. I add 6 and then multiply the result by 9. Write an expression for the result.

(2)

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10 Simplify $7b^2 \times 9bc$.

(2)

11 A pen costs t pence. Write an expression for the cost of 8 pens and a 10p ruler. Write an expression for the result.

(2)

12 Simplify $-2a - 4 + 8a + 4y - 9$.

(3)

13 Simplify $-3b^2 + 9b - 3b^2 + 8b + 6$.

(3)

14 Simplify $9z \times 5z$.

(2)

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15 Here is an expression: 2z + 9b - 1

(a) How many terms does it have?

(b) Write down the coefficient of z.

(2)

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16 Simplify 8b x 5b.

(2)

---

17 I think of a number, x. I multiply it by 3 and then add 7. Write an expression for the result.

.....

.....

(2)

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18 Simplify $5c^2$ x 7cz.

(2)

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19 Use algebraic notation to write each description. Pay attention to multiplication convention.

(a) The product of 4 and the number k. **(2)**

.....

(b) Two lots of a number n. **(2)**

.....

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20 Simplify 3y x 3b.

(2)

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21 State the coefficient of x in 9x.

(1)

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Mark scheme · 2.4 Introduction to Algebraic Notation: 1-hour Pack

Question 1

(a) 5x cao	B1
(a) Answer: **5x**	
(b) 5y cao	B1
(b) Answer: **5y**	

Question 2

collects at least one pair of like terms correctly	M1
collects a second set of like terms correctly	M1
-4q + 3c + 11 cao	A1
Answer: **-4q + 3c + 11**	

Question 3

collects at least one pair of like terms correctly	M1
-3x + 4b cao	A1
Answer: **-3x + 4b**	

Question 4

multiplies (or divides) the numbers correctly or the letters correctly	M1
4y cao	A1
Answer: **4y**	

Question 5

Expression	B1
reason: no equals sign	B1
Answer: **Expression, because it has no equals sign**	

Question 6

(a) 4(q + c)	B1
(b) $4q^3$	B1
Answer: **(a) 4(q + c), (b) $4q^3$**	

Question 7

multiplies (or divides) the numbers correctly or the letters correctly	M1
8y cao	A1
Answer: **8y**	

Question 8

multiplies (or divides) the numbers correctly or the letters correctly	M1
8m cao	A1
Answer: **8m**	

Question 9

one correct operation applied to the letter, eg a product or a sum	M1
9(n + 6) oe cao	A1
Answer: **9(n + 6)**	

Question 10

multiplies (or divides) the numbers correctly or the letters correctly	M1
$63b^3c$ cao	A1
Answer: **$63b^3c$**	

Question 11

one correct operation applied to the letter, eg a product or a sum	M1
8t + 10 oe cao	A1
Answer: **8t + 10**	

Question 12

collects at least one pair of like terms correctly	M1
collects a second set of like terms correctly	M1
6a + 4y - 13 cao	A1
Answer: **6a + 4y - 13**	

Question 13

collects at least one pair of like terms correctly	M1
collects a second set of like terms correctly	M1
$-6b^2 + 17b + 6$ cao	A1
Answer: **$-6b^2 + 17b + 6$**	

Question 14

multiplies (or divides) the numbers correctly or the letters correctly	M1
$45z^2$ cao	A1
Answer: **$45z^2$**	

Question 15

(a) 3	B1
(b) 2	B1
Answer: **(a) 3, (b) 2**	

Question 16

multiplies (or divides) the numbers correctly or the letters correctly	M1
$40b^2$ cao	A1
Answer: **$40b^2$**	

Question 17

one correct operation applied to the letter, eg a product or a sum	M1
3x + 7 oe cao	A1
Answer: **3x + 7**	

Question 18

multiplies (or divides) the numbers correctly or the letters correctly	M1
$35c^3z$ cao	A1
Answer: **$35c^3z$**	

Question 19

(a) uses multiplication notation such as 4k or 4 x k	M1
(a) 4k cao	A1
(a) Answer: **4k**	
(b) recognises 'two lots of' means 2 times n	M1
(b) 2n cao	A1
(b) Answer: **2n**	

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Question 20

multiplies (or divides) the numbers correctly or the letters correctly	**M1**
9yb cao	**A1**

Answer: **9yb**

Question 21

9 cao	**B1**

Answer: **9**

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