Test - Algebraic notation and simplifying expressions

Year: Year 7 · Duration: 45 minutes · /20

Name:	Date:	**Mark: /20**

Question	1	2	3	4	5	Total
marks	4	4	4	4	4	**20**
Mark						

Show your working.

Question 1 (4 marks)

Question 1 – Notation and terms

(a) Write $5 \times a \times a \times b$ in algebraic notation. (1 mark)
(b) Simplify $7x + 3y - 2x + y$. (2 marks)
(c) Simplify $12ab \div 4a$. (1 mark)

Question 2 (4 marks)

Question 2 – Expanding the notation

(a) Write an expression for the total cost of 4 notebooks at £n each and 3 pens at £p each. (1 mark)
(b) Simplify $2(x + 3) + 3(x - 1)$. (2 marks)
(c) Work out the value of $3x^2$ when $x = -2$. (1 mark)

Question 3 (4 marks)

Question 3 – Simplify and substitute

(a) Simplify $4a + 5b - a + 2b$. (2 marks)
(b) Work out the value of your answer to part (a) when a = 3 and b = -1. (2 marks)

Question 4 (4 marks)

Question 4 – Problem: the school fair

At the school fair, a pupil sells cups of lemonade for £c each and slices of cake for £d each. In the morning she sells 12 cups and 8 slices. In the afternoon she sells 15 cups and 10 slices.

a. Write an expression for the money from the morning. (1 mark)
b. Write a simplified expression for the total money in the whole day. (2 marks)

c. A cup of lemonade costs 50p and a slice of cake costs £1.20. Work out the total takings for the day. (1 mark)

Question 5 (4 marks)

Question 5 – Problem: the garden fence

A rectangular garden has length (3x + 2) metres and width (x + 1) metres.

a. Write and simplify an expression for the perimeter. (2 marks)
b. The perimeter is 36 m. Form an equation and find the value of x. (2 marks)