Test - Algebra: expressions and factorising

Year: Year 8 · 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 – Skills check

Answer all parts. Show your working.

a. Simplify $5a + 3b - 2a + 4b$. (2 marks)
b. Expand $3(2x - 7)$. (1 mark)
c. Factorise $8p + 12$. (1 mark)

Question 2 (4 marks)

Question 2 – Expanding and simplifying

Expand and simplify.

a. $4(x + 3) + 2(x - 1)$ (2 marks)
b. $5(2y - 1) - 3(y - 4)$ (2 marks)

Question 3 (4 marks)

Question 3 – Factorising and substituting

Let $a = 4$ and $b = -3$.

a. Work out the value of $2a - 3b$. (1 mark)
b. Work out the value of $a^2 + b^2$. (1 mark)
c. Factorise fully $12x^2y + 18xy^2$. (2 marks)

Question 4 (4 marks)

Question 4 – Problem: the youth club

A youth club hires a bus. The bus company charges £60 plus £5 per pupil. The club

also pays £3 per pupil for a snack.

a. Write an expression for the total cost for n pupils. (2 marks)
b. Find the cost for 24 pupils. (1 mark)
c. The club has £400. What is the largest number of pupils it can take? (1 mark)

Question 5 (4 marks)

Question 5 – Problem: algebra proof

Hana thinks of a number n. She multiplies it by 3, adds 12, then divides the result by 3.

a. Write an expression for her final answer and simplify it. (2 marks)
b. Hana says: "My answer is always 4 more than my starting number." Show whether she is correct. (2 marks)