2.1 Algebra: Expressions and Formulae: 30-minute Pack

Calculator allowed · about 30 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Write an expression.
Multiply a number, k, by 5, then subtract 3.

(1)

2 Simplify 12c - 12c.

(1)

3 Expand the brackets in each expression.

(a) 3(x + 4) **(1)**

(b) 5(2y - 3) **(2)**

(c) -2(3a + 5) **(2)**

© Revision Library | revisionlibrary.co.uk

4 Amy babysits and charges using the formula P = 6h + 2.50, where P is her payment in pounds and h is the number of hours she works.

(a) Find Amy's payment for 4 hours of babysitting. **(2)**

.....

(b) One evening Amy is paid £38.50. Work out how many hours she worked. **(2)**

.....

(c) Tom says, 'If you double the number of hours, Amy's payment doubles too.' **(2)**
Use a calculation to show whether Tom is correct.

© Revision Library | revisionlibrary.co.uk

5 Factorise each expression fully.

(a) 6x + 9 **(2)**

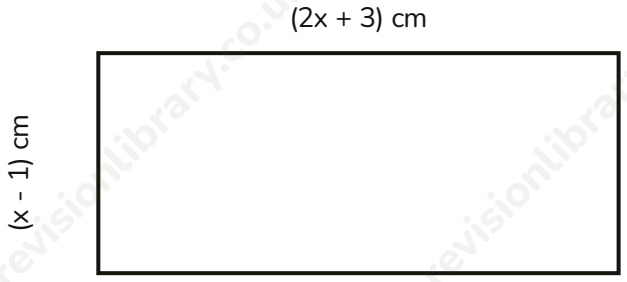
(b) 10y - 15 **(2)**

(c) 8a + 12b **(2)**

---

6 A rectangle has length (2x + 3) cm and width (x - 1) cm.

Diagram NOT accurately drawn



(a) Write an expression, in its simplest form, for the perimeter of the rectangle. **(2)**

(b) Given that x = 5, find the numerical perimeter of the rectangle in cm. **(2)**

© Revision Library | revisionlibrary.co.uk

Mark scheme · 2.1 Algebra: Expressions and Formulae: 30-minute Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

5k - 3 oe	B1
Answer: **5k - 3**	

Question 2

0 cao	B1
Answer: **0**	

Question 3

(a) 3x + 12 cao oe	B1
(a) Answer: **3x + 12**	
(b) one term correct, e.g. 10y or -15 seen	M1
(b) 10y - 15 cao oe	A1
(b) Answer: **10y - 15**	
(c) one term correct with correct sign, e.g. -6a or -10 seen	M1
(c) -6a - 10 cao oe	A1
(c) Answer: **-6a - 10**	

Question 4

(a) 6 x 4 (=24) seen, or 24 + 2.50 seen	M1
(a) £26.50 cao	A1
(a) Answer: **£26.50**	
(b) 38.50 - 2.50 (=36) seen, or correct rearrangement 6h = 36	M1
(b) h = 6 cao	A1
(b) Answer: **h = 6 hours**	
(c) correct comparison calculation, e.g. P(4)=26.50 and P(8)=50.50 found, or double of 26.50 (=53) found	B1
(c) correct conclusion that Tom is incorrect, with reference to the payment not doubling because of the fixed £2.50 (ft from calculation)	B1
(c) Answer: **Tom is incorrect: for 4 hours P = £26.50 but for 8 hours P = £50.50, not £53.00**	

Question 5

(a) 3 identified as the highest common factor, or partial factorisation e.g. 3(2x+3) attempted	M1
(a) 3(2x + 3) cao oe	A1
(a) Answer: **3(2x + 3)**	
(b) 5 identified as the highest common factor	M1
(b) 5(2y - 3) cao oe	A1
(b) Answer: **5(2y - 3)**	
(c) 4 identified as the highest common factor	M1
(c) 4(2a + 3b) cao oe	A1
(c) Answer: **4(2a + 3b)**	

Question 6

(a) 2[(2x+3)+(x-1)] or 2(2x+3)+2(x-1) seen	M1
(a) 6x + 4 cao oe	A1
(a) Answer: **6x + 4**	
(b) length=13 and width=4, or 6(5)+4 substituted	M1
(b) 34 cm cao	A1
(b) Answer: **34 cm**	

© Revision Library | revisionlibrary.co.uk