2.108 Substitution and Formulae in Words: 10-minute Pack

Total Marks

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 10 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 The area A of a rectangle is given by A = l x w. Find the area when l = 6 m and w = 3 m.

- ☐ A) 9 m²
- ☐ B) 18 m²
- ☐ C) 24 m²
- ☐ D) 36 m²
- ☐ E) 63 m²

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2 The total cost C (in pence) for a group is given by C = 120 + 35n, where n is the number of people. What is the cost in pounds for 4 people?

- ☐ A) £1.60
- ☐ B) £2.20
- ☐ C) £0.60
- ☐ D) £2.60
- ☐ E) £3.60

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3 If S = 2(x + 3) and x = 4, what is S?

- ☐ A) 14
- ☐ B) 11
- ☐ C) 10
- ☐ D) 16
- ☐ E) 8

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4 A recipe says the number of scoops, S, needed is S = 3b - 1 where b is the number of bowls. How many scoops for b = 5?

- [ ] A) 14
- [ ] B) 15
- [ ] C) 10
- [ ] D) 13
- [ ] E) 11

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5 From the formula M = 5 + 2n, where n is the number of items, find M when n = 0.

- [ ] A) 0
- [ ] B) 2
- [ ] C) 5
- [ ] D) 7
- [ ] E) 10

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6 For the formula F = 4p - (2 + p), find F when p = 3.

- [ ] A) 6
- [ ] B) 7
- [ ] C) 8
- [ ] D) 5
- [ ] E) 9

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7 A toy's price P in pence is given by P = 150 - 3x, where x is the number of stickers used. Find P when x = 10 and when x = 0. State both answers in pounds.

(2)

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8 A formula is given by R = 3(x + 2y) - 5. Calculate R when x = 4 and y = 3. Show your working.

(3)

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Mark scheme · 2.108 Substitution and Formulae in Words: 10-minute Pack

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

Question 1

correct option B (18 m²) cao **B1**

Answer: B) 18 m^2 (6 x 3 = 18).

Question 2

correct option D (£2.60) cao **B1**

Answer: D) £2.60

Question 3

correct option A (14) cao **B1**

Answer: A) 14

Question 4

correct option A (14) cao **B1**

Answer: A) 14 because 3 x 5 - 1 = 15 - 1 = 14.

Question 5

correct option C (5) cao **B1**

Answer: C) 5 (5 + 2 x 0 = 5).

Question 6

correct option B (7) cao **B1**

Answer: B) 7 because F = 4x3 - (2 + 3) = 12 - 5 = 7.

Question 7

substitutions P = 150 - 3 x 10 and P = 150 - 3 x 0 seen **M1**

answers £1.20 and £1.50 cao **A1**

Answer: When x = 10: P = 150 - 30 = 120p = £1.20. When x = 0: P = 150p = £1.50.

Question 8

substitution 3(4 + 2 x 3) - 5 or equivalent seen **M1**

evaluation inside brackets 4 + 6 = 10 or 2 x 3 = 6 seen **M1**

R = 25 cao **A1**

Answer: R = 3(4 + 2 x 3) - 5 = 3(4 + 6) - 5 = 3 x 10 - 5 = 30 - 5 = 25.

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