2.12 Writing and Using Formulae: 30-minute Pack

Calculators not allowed · about 30 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Make n the subject of the formula T = 8 - 5n.

(3)

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2 Use the formula A = 1/2 bh
to work out the value of A when b = 9, h = 8.

(2)

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3 The cost, C pounds, of hiring a ladder for h days is given by C = 28 + 8h.
Work out the cost of hiring the ladder for 14 days.

(2)

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4 Substitute and evaluate. Use the formula S = 2h + 5.

(a) Find S when h = 4. **(1)**

(b) Find S when h = 0. **(1)**

(c) Find S when h = -2. **(1)**

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5 Use the formula $s = ut + 1/2\ at^2$
to work out the value of s when u = 10, t = 8, a = 3.

(3)

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6 The cost, C pounds, of hiring a ladder for h days is given by C = 38 + 5h.
The total cost is £63. Work out the number of days.

(3)

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7 Make t the subject of the formula v = u + 2t.

(3)

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8 A plumber charges a call-out fee of £31 plus £4 for every hour of work. Write a formula for the total cost, C pounds, of a job that takes d hours.

.....

.....

(2)

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9 The area of a triangle is given by A = 1/2 b h. Rearrange to make h the subject.

(a) Rearrange A = 1/2 b h to make h the subject. **(3)**

(b) Use your rearranged formula to find h when A = 24 and b = 6. **(1)**

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Mark scheme · 2.12 Writing and Using Formulae: 30-minute Pack

Question 1

correct first step (e.g. undo the addition or subtraction)	M1
correct second step (divide by the coefficient)	M1
(8 - T)/5 oe cao	A1

Answer: **n = (8 - T)/5**

Question 2

correct substitution into the formula	M1
36 cao	A1

Answer: **36**

Question 3

substitutes h = 14: 28 + 8 x 14	M1
£140 cao	A1

Answer: **£140**

Question 4

(a) S = 13 cao	B1

(a) Answer: **13**

(b) S = 5 cao	B1

(b) Answer: **5**

(c) S = 1 cao	B1

(c) Answer: **1**

Question 5

correct substitution into the formula	M1
correct order of operations when evaluating	M1
176 cao	A1

Answer: **176**

Question 6

38 + 5h = 63	M1
5h = 25 or equivalent	M1
5 (days) cao	A1

Answer: **5 days**

Question 7

correct first step (e.g. undo the addition or subtraction)	M1
correct second step (divide by the coefficient)	M1
(v - u)/2 oe cao	A1

Answer: **t = (v - u)/2**

Question 8

one correct term or a correct structure	M1
C = 31 + 4d oe cao	A1

Answer: **C = 31 + 4d**

Question 9

(a) multiply both sides by 2 or show 2A = b h	M1
(a) divide both sides by b or show h = 2A / b	M1
(a) h = 2A / b cao	A1

(a) Answer: **h = 2A / b**

(b) h = 8 cm or units not required but value 8 cao	B1

(b) Answer: **8**

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