2.47-4 Mixed Problem-Solving Paper D: 30-minute Pack

Total Marks

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 30 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Tom starts with £20 of pocket money. He spends 2/5 of it on a comic. He then spends 1/4 of what remains on sweets. How much money does he have left?

(3)

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2 A rectangular lawn measures 15 m by 9 m. A square flower bed with sides of 4 m is cut out of one corner of the lawn and is not grassed. What is the area of the lawn that remains grassed?

(3)

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3 The table shows the number of pets owned by pupils in a class: 0 pets - 6 pupils, 1 pet - 9 pupils, 2 pets - 7 pupils, 3 pets - 3 pupils. How many pupils are in the class, and what is the total number of pets owned by the class?

(3)

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4 Paint is made by mixing blue paint and white paint in the ratio 3:7. Priya has 6 litres of blue paint and wants to use all of it. How many litres of white paint does she need, and what is the total volume of paint produced?

(3)

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5 In a triangle, the second angle is twice the size of the first angle. The third angle is 20 degrees more than the first angle. Work out the size of each of the three angles.

(3)

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6 Entry to a fun fair costs £6.50 per child and £9.20 per adult. A group of 4 children and 3 adults visits the fair. Each of the 7 people also buys one drink costing £1.80. What is the total amount spent by the group?

(3)

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7 A rectangular garden is 12 m long and 7 m wide. A fence is needed around the whole garden except for a 2 m wide gate, which needs no fencing. What length of fencing is required?

(3)

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8 Five pupils sat a spelling test out of 20. Four of the pupils scored 14, 17, 12 and 19. The mean score for all five pupils was 15. What was the fifth pupil's score?

(3)

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9 A bakery has two ovens running throughout the day. Oven A bakes 18 loaves every 30 minutes. Oven B bakes 20 loaves every 40 minutes.

(a) Work out the number of loaves each oven bakes per hour, and state which oven bakes at the faster rate. **(2)**

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(b) Both ovens start baking at 09:00 and run continuously at these same rates until 17:00. How many more loaves will Oven A have baked than Oven B by 17:00? **(3)**

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10 A car travels at a constant speed and covers 63 km in 45 minutes. At the same speed, how many kilometres would it travel in 2 hours 20 minutes?

(4)

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11 What is the highest common factor of 24 and 36?

(2)

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Mark scheme · 2.47-4 Mixed Problem-Solving Paper D: 30-minute Pack

Question 1

2/5 * 20 = £8 (comic), leaving £12 found	**M1**
1/4 * 12 = £3 (sweets) found	**M1**
£9 cao ft	**A1**

Answer: £9

Question 2

15 * 9 = 135 m² (lawn area) found	**M1**
4 * 4 = 16 m² (flower bed area) found	**M1**
119 m² cao ft	**A1**

Answer: 119 m^2

Question 3

25 pupils cao (6 + 9 + 7 + 3)	**B1**
method for total pets shown: (0 * 6) + (1 * 9) + (2 * 7) + (3 * 3)	**M1**
32 pets cao	**A1**

Answer: 25 pupils; 32 pets in total

Question 4

6 / 3 = 2 litres (value of 1 part) found	**M1**
7 * 2 = 14 litres (white paint) found	**M1**
20 litres total cao ft	**A1**

Answer: 14 litres of white paint; 20 litres in total

Question 5

forms x + 2x + (x + 20) = 180, or equivalent	**M1**
4x + 20 = 180, so x = 40 found	**M1**
40 degrees, 80 degrees and 60 degrees all correct cao	**A1**

Answer: 40 degrees, 80 degrees, 60 degrees

Question 6

4 * 6.50 = 26 and 3 * 9.20 = 27.60 (entry costs) found	**M1**
7 * 1.80 = 12.60 (drinks) found	**M1**
£66.20 cao ft	**A1**

Answer: £66.20

Question 7

2 * (12 + 7) = 38 m (perimeter) found	**M1**
38 - 2 (subtracts the gate width) shown	**M1**
36 m cao ft	**A1**

Answer: 36 m

Question 8

15 * 5 = 75 (total needed for 5 pupils) found	**M1**
14 + 17 + 12 + 19 = 62 (sum of four known scores) found	**M1**
13 cao ft	**A1**

Answer: 13

Question 9

(a) Oven A: 18 / 30 * 60 = 36 per hour (or equivalent) found	**M1**
(a) Oven B: 20 / 40 * 60 = 30 per hour found, and correctly states Oven A is faster cao	**A1**

(a) Answer: Oven A: 36 loaves per hour; Oven B: 30 loaves per hour; Oven A is faster

(b) 09:00 to 17:00 = 8 hours found	**M1**
(b) Oven A: 36 * 8 = 288 and Oven B: 30 * 8 = 240 found, ft their rates from part (a)	**M1**
(b) 48 cao ft	**A1**

(b) Answer: 48 more loaves

Question 10

63 / 45 * 60 = 84 km/h (speed per hour) found	**M1**
2 hours 20 minutes converted to 7/3 hours (or 140 minutes)	**M1**
84 * 7/3 (dep on both previous marks) method shown	**dM1**
196 km cao	**A1**

Answer: 196 km

Question 11

lists factors of 24 and/or 36, or uses prime factorisation	**M1**
12 cao	**A1**

Answer: 12

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