2.47 Mixed Problem-Solving Paper A: 30-minute Pack

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

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A minibus can carry 17 passengers. 130 people need to travel to a museum. What is the smallest number of minibuses needed to carry everyone?

(3)

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2 Ellie uses 1/4 of a length of rope to tie a parcel. Ravi uses 2/5 of the same rope to tie a different parcel. What fraction of the rope is left over?

(3)

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3 A cyclist travels 45 km in 2 hours 30 minutes at a constant speed.

(a) Find the cyclist's average speed, in km/h. **(2)**

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(b) At this speed, how far would the cyclist travel in 40 minutes? **(2)**

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4 A pie chart shows how 180 students at a school travel to school each morning. The sector for 'Walk' has an angle of 120 degrees. How many students walk to school?

(3)

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5 At a sports centre car park, the ratio of staff cars to visitor cars is 3:2, and the ratio of visitor cars to disabled-bay cars is 4:1. There are 110 cars in the car park altogether. How many disabled-bay cars are there?

(3)

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6 Write down a number that is a multiple of both 6 and 8, and is less than 50.

(2)

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7 Olivia buys a pair of trainers costing £85. In a sale it is reduced by 20%. What is the sale price?

(3)

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8 A rectangular lawn measures 12 m by 7.3 m. Turf is sold only in whole square metres, and enough must be bought to cover the whole lawn. Turf costs £4.50 per square metre. What is the total cost of turfing the lawn?

(4)

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9 Three consecutive whole numbers add up to 84. What is the largest of the three numbers?

(3)

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10 Sana has a bag of 40 marbles. She gives away 3/5 of the marbles to her cousins. How many marbles does she give away?

(2)

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11 Write these fractions in order, starting with the smallest: 2/3, 5/8, 7/12

(2)

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

Question 1

attempts 130 / 17, e.g. 17 x 7 = 119	**M1**
identifies a remainder of 11 people (130 - 119), who still need transport	**dM1**
8 cao	**A1**

Answer: 8 minibuses

Question 2

converts to a common denominator: 1/4 = 5/20 and 2/5 = 8/20	**M1**
5/20 + 8/20 = 13/20 (total rope used)	**M1**
7/20 cao	**A1**

Answer: 7/20

Question 3

(a) 2 hours 30 minutes = 2.5 hours	**M1**
(a) 18 km/h cao	**A1**

(a) Answer: 18 km/h

(b) 40 minutes = 2/3 hour (or equivalent, e.g. 18/60 x 40)	**M1**
(b) 12 km cao, ft their speed from (a)	**A1**

(b) Answer: 12 km

Question 4

120/360 simplified to 1/3, or equivalent	**M1**
180 x 120/360 (complete correct method)	**M1**
60 cao	**A1**

Answer: 60 students

Question 5

combines the ratios using a common value for visitor cars: staff:visitor:disabled = 6:4:1	**M1**
6 + 4 + 1 = 11 parts; 110 / 11 = 10	**M1**
10 cao	**A1**

Answer: 10 disabled-bay cars

Question 6

lists multiples of 6 and/or 8, or identifies the lowest common multiple (24)	**M1**
24 or 48 oe	**A1**

Answer: 24 (or 48)

Question 7

10% of 85 = 8.50	**M1**
20% of 85 = 17 (doubles 10%, or uses 85 x 0.2)	**M1**
£68 cao	**A1**

Answer: £68

Question 8

12 x 7.3 = 87.6 (area of the lawn)	**M1**
rounds up to 88 square metres, since the whole lawn must be covered	**M1**
88 x 4.50 (complete correct method)	**M1**
£396 cao	**A1**

Answer: £396

Question 9

84 / 3 = 28 (or forms 3n + 3 = 84)	**M1**
identifies the three numbers as 27, 28, 29	**M1**
29 cao	**A1**

Answer: 29

Question 10

40 / 5 = 8 (finds one fifth)	**M1**
24 cao	**A1**

Answer: 24 marbles

Question 11

converts all three fractions to a common denominator of 24 (16/24, 15/24, 14/24), or uses an equivalent correct comparison method	**M1**
7/12, 5/8, 2/3 cao (correct order)	**A1**

Answer: 7/12, 5/8, 2/3

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