2.47-2 Mixed Problem-Solving Paper B: 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 Farah paints 2/7 of a fence on Monday and 3/8 of the fence on Tuesday. What fraction of the fence is still unpainted?

(3)

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2 A train travels 84 km in 1 hour 45 minutes at a constant speed.

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

.....

(b) At this speed, how long would it take to travel a further 20 km? Give your answer in minutes. **(2)**

.....

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3 A laptop costs £460. In a sale it is reduced by 15%. What is the sale price?

(3)

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4 A box contains 54 sweets. 2/9 of the sweets are toffees. How many toffees are in the box?

(2)

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5 A roll of ribbon is 17 metres long. Nia cuts it into pieces that are each 5/8 metre long. How many complete pieces can she cut, and how much ribbon is left over?

(4)

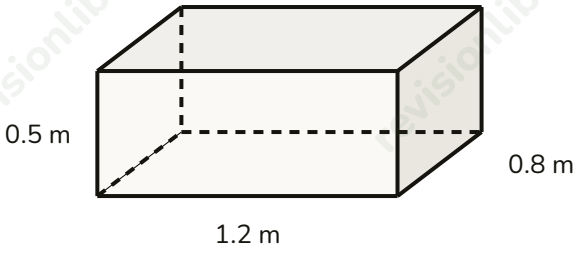
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6 A rectangular wall measures 5.5 m by 3.2 m. Tins of paint each cover 4 square metres, and only whole tins can be bought, with enough needed to cover the whole wall. Each tin costs £13.50. What is the total cost of painting the wall?

(4)

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7 A closed cuboid water tank has length 1.2 m, width 0.8 m and height 0.5 m.



(a) Find the volume of the tank, in cubic metres. **(2)**

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(b) 1 cubic metre = 1000 litres. The tank is filled using a hose that delivers water at 15 litres per minute. How long does it take to fill the tank completely? **(2)**

.....

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8 A rectangular lawn is twice as long as it is wide. A path of width 1 m is built all the way around the outside of the lawn, so that the lawn and path together form a larger rectangle. The area of the path alone is 40 m². Find the dimensions of the original lawn.

(5)

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9 A train leaves the station at 07:52. The journey to the coast takes 2 hours 19 minutes. At what time does the train arrive?

(2)

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10 Idris buys 3 identical notebooks at £2.15 each and a pack of pens for £3.40. He pays with a £20 note. How much change does he receive?

(3)

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Mark scheme · 2.47-2 Mixed Problem-Solving Paper B: 30-minute Pack

Question 1

converts to a common denominator: 2/7 = 16/56 and 3/8 = 21/56 **M1**

16/56 + 21/56 = 37/56 (total fraction painted) **M1**

19/56 cao **A1**

Answer: 19/56

Question 2

(a) 1 hour 45 minutes = 1.75 hours **M1**

(a) 48 km/h cao **A1**

(a) Answer: 48 km/h

(b) 48 km/h = 0.8 km per minute (or equivalent, e.g. 20/48 hours) **M1**

(b) 25 minutes cao, ft their speed from (a) **A1**

(b) Answer: 25 minutes

Question 3

10% of 460 = 46 **M1**

15% of 460 = 46 + 23 = 69 (or 460 x 0.15) **M1**

£391 cao **A1**

Answer: £391

Question 4

54 / 9 = 6 (finds one ninth) **M1**

12 cao **A1**

Answer: 12 toffees

Question 5

17 / (5/8) = 17 x 8/5 = 136/5, or equivalent method **M1**

identifies 27 as the greatest whole number of pieces (since 136/5 = 27.2) **M1**

27 pieces cao **A1**

0.125 m (1/8 m) left over cao **A1**

Answer: 27 pieces, with 0.125 m (1/8 m) left over

Question 6

5.5 x 3.2 = 17.6 (area of the wall) **M1**

rounds up to 5 tins, since 17.6 / 4 = 4.4 and the whole wall must be covered **M1**

5 x 13.50 (complete correct method) **M1**

£67.50 cao **A1**

Answer: £67.50

Question 7

(a) 1.2 x 0.8 = 0.96 (or another correct pairing of two dimensions) **M1**

(a) 0.48 m^3 cao **A1**

(a) Answer: 0.48 m^3

(b) 0.48 m^3 = 480 litres (uses 1 m^3 = 1000 litres) **M1**

(b) 32 minutes cao, ft their volume from (a) **A1**

(b) Answer: 32 minutes

Question 8

lets the lawn be w by 2w, and forms the outer rectangle (2w + 2) by (w + 2), from a 1 m path on every side **M1**

expands the outer area to $2w^2 + 6w + 4$ **M1**

subtracts the lawn area $2w^2$ to find the path area = 6w + 4, or equivalent complete method **dM1**

sets 6w + 4 = 40 and solves to w = 6 **dM1**

lawn measures 6 m by 12 m, both dimensions correct cao **A1**

Answer: Width 6 m, length 12 m

Question 9

adds 2 hours to reach 09:52, or converts to a total of 139 minutes added **M1**

10:11 (accept 10.11 am / 10:11 am) cao **A1**

Answer: 10:11

Question 10

3 x 2.15 = 6.45 **M1**

6.45 + 3.40 = 9.85 **M1**

£10.15 cao **A1**

Answer: £10.15

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