2.21-2 Worded Problems Set 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 A rectangular vegetable patch is 7.5 m long and 4 m wide. Connor wants to put fencing all the way around the patch, but leaves a 1.5 m gap for a gate. How many metres of fencing does he need?

(2)

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2 A model train is built to a scale of 1:75. The real locomotive is 12 m long. How long is the model, in centimetres?

- ☐ A) 12 cm
- ☐ B) 9 cm
- ☐ C) 18 cm
- ☐ D) 25 cm
- ☐ E) 16 cm

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3 A train timetable shows trains leaving every 24 minutes, starting at 07:12. What is the departure time of the 6th train of the day?

(2)

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4 Salma is 4 years older than her brother Ollie. In 6 years' time, the sum of their ages will be 42. How old is Ollie now?

(2)

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5 A school trip costs £84 per pupil. Erin's parents pay a £20 deposit, then the rest in equal monthly instalments over 4 months.

(a) How much is left to pay after the deposit? **(1)**

.....

(b) How much is each monthly instalment? **(2)**

.....

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6 A swimming lesson starts at 16:10 and lasts 45 minutes. What time does it finish?

(1)

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7 A school fete raises £160. 1/4 of the money is spent on prizes, and the remainder is split between two charities in the ratio 5:3. How much does the charity with the larger share receive?

- ☐ A) £75
- ☐ B) £45
- ☐ C) £90
- ☐ D) £60
- ☐ E) £100

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8 On 22/09, Hassan drives to a warehouse 90 km away at an average speed of 60 km/h. He leaves home at 08:40.

(a) At what time does he arrive at the warehouse? **(1)**

.....

(b) He stays at the warehouse for 40 minutes, then drives home again, this time at an average speed of 45 km/h because of traffic. At what time does he get home? **(2)**

.....

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9 A library orders 270 new books. 2/9 of the books are for younger readers, 1/3 are for teenagers, and the rest are for adults. How many more adult books are ordered than younger-reader books?

- ☐ A) 30
- ☐ B) 40
- ☐ C) 60
- ☐ D) 90
- ☐ E) 120

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10 A theatre has 10 rows of seats, with the same number of seats in each row. If 4 more seats were added to each row, the theatre would hold 300 seats in total.

(a) How many seats are currently in each row? **(2)**

.....

(b) How many seats does the theatre currently hold in total? **(1)**

.....

(c) Instead, suppose no seats are added to each row, but 2 extra rows (each holding the original number of seats) are added to the theatre. How many seats would the theatre hold in total? **(1)**

.....

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11 Six cousins, Kai, Siobhan, Femi, Rosa, Charlotte and Deepak, share money from selling old toys in the ratio 1:2:2:3:4:6 respectively. The mean amount received across all six cousins is £9.

(a) What is the total amount of money shared? **(2)**

.....

(b) How much did Charlotte receive? **(2)**

.....

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12 At 10:00, Poppy and Tomasz start cycling towards each other along a straight cycle path that is 27 km long, starting from opposite ends at the same time. Poppy cycles at 15 km/h and Tomasz cycles at 12 km/h.

(a) What is their combined speed of approach, in km/h? **(1)**

.....

(b) At what time do they meet? **(2)**

.....

13 Find the mean of these five numbers: 4, 6, 6, 8, 11.

- ☐ A) 6
- ☐ B) 6.5
- ☐ C) 7
- ☐ D) 7.5
- ☐ E) 11

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Mark scheme · 2.21-2 Worded Problems Set B: 30-minute Pack

Question 1

perimeter = 2 x (7.5 + 4) = 23 m **M1**

21.5 m, after subtracting the 1.5 m gate **A1**

Answer: 21.5 m

Question 2

converts 12 m to 1200 cm **M1**

E) 16 cm (1200 / 75) **A1**

Answer: E) 16 cm

Question 3

the 6th train is 5 intervals after the 1st, so 5 x 24 = 120 minutes after 07:12 **M1**

09:12 **A1**

Answer: 09:12

Question 4

sets up (x + 6) + (x + 10) = 42, or equivalent, giving 2x + 16 = 42 **M1**

13 years old **A1**

Answer: 13 years old

Question 5

(a) £64 **B1**

(a) Answer: £64

(b) identifies £64 remaining, to be split over 4 months **M1**

(b) £16 per month (64 / 4) **A1**

(b) Answer: £16

Question 6

16:55 **B1**

Answer: 16:55

Question 7

prizes = 1/4 x 160 = £40; remainder = 160 - 40 = £120 **M1**

ratio parts total 8, one part = 120 / 8 = £15 **M1**

A) £75 (5 x £15) **A1**

Answer: A) £75

Question 8

(a) 10:10 **B1**

(a) Answer: 10:10

(b) finds departure time after the break (10:10 + 0:40 = 10:50) and the return journey time (90 / 45 = 2 hours) **M1**

(b) 12:50 **A1**

(b) Answer: 12:50

Question 9

younger = 2/9 x 270 = 60 and teenagers = 1/3 x 270 = 90 **M1**

adults = 270 - 60 - 90 = 120 **M1**

C) 60 (120 - 60) **A1**

Answer: C) 60

Question 10

(a) 300 / 10 = 30 (seats per row if 4 were added) **M1**

(a) 26 seats per row **A1**

(a) Answer: 26 seats per row

(b) 260 seats **B1**

(b) Answer: 260 seats

(c) 312 seats **B1**

(c) Answer: 312 seats

Question 11

(a) total = mean x 6 **M1**

(a) £54 **A1**

(a) Answer: £54

(b) total ratio parts = 1 + 2 + 2 + 3 + 4 + 6 = 18, one part = 54 / 18 = £3 **M1**

(b) £12 (Charlotte's 4 parts x £3) **A1**

(b) Answer: £12

Question 12

(a) 27 km/h **B1**

(a) Answer: 27 km/h

(b) time = distance / combined speed = 27 / 27 **M1**

(b) 11:00 (1 hour after 10:00) **A1**

(b) Answer: 11:00

Question 13

C) 7, from a total of 35 divided by 5 numbers **B1**

Answer: C) 7

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