



EP.M87 Non-Calculator Reasoning Paper B

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 52 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1 Write the number six thousand and forty-seven in figures.

(Total for Question 1 is 1 mark)

- 2 Work out $9 \times 7 - 8$.

(Total for Question 2 is 1 mark)

- 3 A number, when rounded to the nearest 100, gives 4200. Write down the largest whole number it could have been.

(Total for Question 3 is 2 marks)

- 4 By rounding each number to 1 significant figure, estimate the value of 612×19 .

(Total for Question 4 is 2 marks)

- 5 Find $\frac{5}{9}$ of 108.

(Total for Question 5 is 2 marks)

6 Write these fractions in order of size, starting with the smallest: $\frac{5}{8}$, $\frac{3}{4}$, $\frac{13}{16}$

(Total for Question 6 is 2 marks)

7 Share 84 sweets between Amir and Zoe in the ratio 4:3. Work out how many sweets Zoe receives.

(Total for Question 7 is 2 marks)

8 A film starts at 19:05. It lasts 2 hours 48 minutes. Work out the time the film finishes.

(Total for Question 8 is 2 marks)

9 Leo buys 4 pens costing £0.85 each and pays with a £5 note. Work out how much change he receives.

(Total for Question 9 is 2 marks)

10 A rectangle has length 16 cm and width 11 cm. Work out its perimeter.

(Total for Question 10 is 2 marks)

11 Here are the first four terms of a sequence: 8, 15, 22, 29. Find the 9th term of the sequence.

(Total for Question 11 is 2 marks)

12 Work out 35% of 180.

(Total for Question 12 is 2 marks)

13 Solve $6x - 11 = 37$.

(Total for Question 13 is 2 marks)

14 Work out $\frac{3}{5}$ of $\frac{5}{6}$ of 72.

(Total for Question 14 is 2 marks)

15 A cinema sells adult tickets for £8.50 and child tickets for £5.25. On Saturday it sold 60 adult tickets and 45 child tickets. Work out the total amount of money taken.

(Total for Question 15 is 3 marks)

16 A jogger runs 12 km in 50 minutes at a constant speed. Work out her speed in km/h.

(Total for Question 16 is 3 marks)

- 17** Two numbers are in the ratio 2:9. The difference between the two numbers is 70. Find the smaller number.

(Total for Question 17 is 3 marks)

- 18** N is a whole number. N is greater than 100 and less than 150. N is a multiple of 4, a multiple of 6 and a multiple of 10. Find N.

(Total for Question 18 is 3 marks)

- 19** The mean of five numbers is 22. Four of the numbers are 14, 19, 25 and 31. Find the fifth number.

(Total for Question 19 is 3 marks)

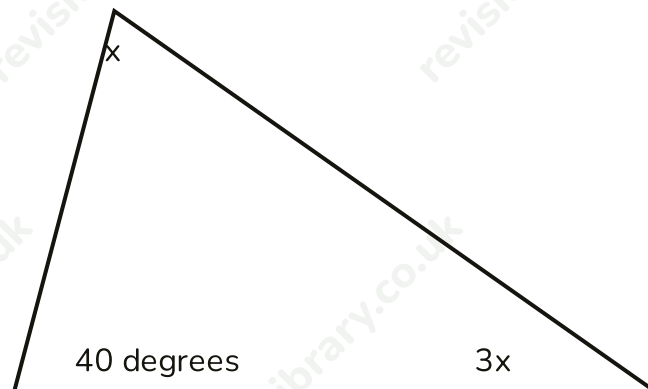
- 20** A jumper normally costs £54. In a sale it is reduced by 20%. Priya has a loyalty card giving a further 5% off the sale price. Work out the final price Priya pays.

(Total for Question 20 is 3 marks)

- 21** Kofi, Layla and Mia have ages that are three consecutive odd numbers. The sum of their ages is 51. Mia is the oldest of the three. Find Mia's age.

(Total for Question 21 is 3 marks)

- 22** A triangle has one angle of 40 degrees. The second angle is three times the size of the third angle. Find the size of the third angle.



(Total for Question 22 is 3 marks)

- 23** The n th term of a sequence is given by $4n^2 - 7$. Work out the 5th term of the sequence.

(Total for Question 23 is 3 marks)

- 24** A school bakes flapjacks for a fundraiser. A recipe for 6 people needs 240 g of butter.

(a) Work out how much butter is needed to make the recipe for 27 people. (2)

(b) Butter is sold in blocks of 250 g. Work out the least number of whole blocks needed to have enough butter for 27 people. (2)

(Total for Question 24 is 4 marks)

- 25** Amelia thinks of a number. She multiplies it by 4, subtracts 9, then divides the result by 5, giving a final answer of 7. Work out the number Amelia started with.

(Total for Question 25 is 3 marks)

- 26** Three consecutive even numbers have a sum that is equal to twice the largest of the three numbers, plus 18. Find the three numbers.

(Total for Question 26 is 4 marks)

Mark scheme · EP.M87 Non-Calculator Reasoning Paper B

Question 1

- **B1** 6047 cao
- **Answer: 6047**

Question 2

- **B1** 55 cao
- **Answer: 55**

Question 3

- **M1** identifies that numbers from 4150 up to (but not including) 4250 round to 4200 (oe)
- **A1** 4249 cao
- **Answer: 4249**

Question 4

- **M1** 612 rounds to 600 and 19 rounds to 20 (oe)
- **A1** 12000 cao
- **Answer: 12000**

Question 5

- **M1** $108 \div 9 = 12$ (oe)
- **A1** 60 cao
- **Answer: 60**

Question 6

- **M1** converts to a common denominator of 16: 10/16, 12/16, 13/16 (oe)
- **A1** 5/8, 3/4, 13/16 cao
- **Answer: 5/8, 3/4, 13/16**

Question 7

- **M1** $84 \div 7 = 12$ (finds one part) (oe)
- **A1** 36 cao
- **Answer: 36**

Question 8

- **M1** complete method, e.g. 19:05 + 55 min to reach 20:00, then + 1 hour 53 min remaining (oe)
- **A1** 21:53 cao
- **Answer: 21:53**

Question 9

- **M1** $4 \times 0.85 = 3.40$ (oe)
- **A1** £1.60 cao
- **Answer: £1.60**

Question 10

- **M1** $16 + 11 = 27$, or $2 \times 16 + 2 \times 11$ (oe)
- **A1** 54 cm cao
- **Answer: 54 cm**

Question 11

- **M1** identifies the term-to-term rule +7 and a correct method to reach the 9th term, e.g. $8 + 8 \times 7$ (oe)
- **A1** 64 cao
- **Answer: 64**

Question 12

- **M1** $10\% = 18$ and $5\% = 9$ (oe)
- **A1** 63 cao
- **Answer: 63**

Question 13

- **M1** $6x = 48$ (oe)
- **A1** $x = 8$ cao
- **Answer: $x = 8$**

Question 14

- **M1** $5/6$ of 72 = 60 (oe)
- **A1** 36 cao
- **Answer: 36**

Question 15

- **M1** $60 \times 8.50 = 510$ (oe)
- **M1** $45 \times 5.25 = 236.25$ (oe)
- **A1** £746.25 cao
- **Answer: £746.25**

Question 16

- **M1** 50 minutes = $5/6$ hour (oe)
- **M1** $12 / (5/6)$, or equivalent method such as $12 / 50 \times 60$ (oe)
- **A1** 14.4 km/h cao
- **Answer: 14.4 km/h**

Question 17

- **M1** identifies that the difference of 7 parts represents 70 (oe)
- **M1** 1 part = 10 (oe)
- **A1** 20 cao
- **Answer: 20**

Question 18

- **M1** finds the lowest common multiple of 4, 6 and 10 (= 60), or lists multiples of each (oe)
- **M1** identifies multiples of 60 between 100 and 150 (oe)
- **A1** 120 cao
- **Answer: 120**

Question 19

- **M1** total of the five numbers = $5 \times 22 = 110$ (oe)
- **M1** sum of the given four numbers = $14 + 19 + 25 + 31 = 89$ (oe)
- **A1** 21 cao
- **Answer: 21**

Question 20

- **M1** 20% of 54 = 10.80, so sale price = 43.20 (oe)
- **M1** 5% of 43.20 = 2.16 (oe)
- **A1** £41.04 cao
- **Answer: £41.04**

Question 21

- **M1** sets up three consecutive odd numbers, e.g. $n - 2$, n , $n + 2$ (oe)
- **M1** $3n = 51$, so $n = 17$ (oe)
- **A1** 19 cao
- **Answer: 19**

Question 22

- **M1** $40 + 3x + x = 180$ (oe)
- **M1** $4x = 140$ (oe)
- **A1** 35 degrees cao
- **Answer: 35 degrees**

Question 23

- **M1** $5^2 = 25$ (oe)
- **M1** $4 \times 25 = 100$ (oe)
- **A1** 93 cao
- **Answer: 93**

Question 24

- (a) **M1** $240 / 6 = 40$ g per person (oe)
- (a) **A1** 1080 g cao
- **(a) Answer: 1080 g**
- (b) **M1** $1080 / 250 = 4.32$ (ft from a) (oe)
- (b) **A1** 5 blocks cao, correctly rounded up
- **(b) Answer: 5 blocks**

Question 25

- **M1** reverses the final division: $7 \times 5 = 35$ (oe)
- **M1** reverses the subtraction and multiplication: $35 + 9 = 44$, then $44 / 4$ (oe)
- **A1** 11 cao
- **Answer: 11**

Question 26

- **M1** lets the numbers be $n - 2$, n , $n + 2$ (oe), so their sum is $3n$
- **M1** sets up the equation $3n = 2(n + 2) + 18$ (oe)
- **M1** solves to give $n = 22$ (oe)
- **A1** 20, 22, 24 cao
- **Answer: 20, 22, 24**