



# EP.M139 GL Assessment Style Numerical Reasoning Paper 1

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 55 minutes

Total Marks

Name: \_\_\_\_\_ Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

**Answer ALL questions. Show all your working.**

1 What is 7 times 8?

(Total for Question 1 is 1 mark)

2 Write  $\frac{3}{4}$  as a decimal.

(Total for Question 2 is 1 mark)

3 A packet of biscuits costs £1.60. How much do 5 packets cost?

(Total for Question 3 is 1 mark)

4 A rectangle is 9 cm long and 4 cm wide.

(a) Work out the area of the rectangle in  $\text{cm}^2$ . (1)

(b) Calculate the perimeter of the rectangle in centimetres. (1)

(Total for Question 4 is 2 marks)

5 Round 4,678 to the nearest 100.

(Total for Question 5 is 1 mark)

- 6** A bus journey takes 2 hours 35 minutes. A second journey takes 1 hour 50 minutes. Work out the total time taken for both journeys in minutes.

(Total for Question 6 is 2 marks)

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- 7** Here are five numbers: 12, 17, 9, 22, 20.

(a) Work out the mean of these numbers. (1)

(b) Work out the range of the numbers. (1)

(Total for Question 7 is 2 marks)

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- 8** Which of these is the same as 45% of 200?

- ☐ A) 9
- ☐ B) 90
- ☐ C) 450
- ☐ D) 0.9
- ☐ E) 45

(Total for Question 8 is 2 marks)

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- 9** I have a number. I subtract 7 and then multiply the result by 5. The final answer is 60. Work out the original number.

(Total for Question 9 is 2 marks)

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- 10** A recipe needs  $2\frac{1}{2}$  kg of flour to make 20 muffins. How much flour is needed for 8 muffins? Give your answer as a fraction in simplest form.

(Total for Question 10 is 2 marks)

- 11** A triangular garden has angles 35 degrees and 65 degrees. Work out the size of the third angle in degrees.

(Total for Question 11 is 2 marks)

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- 12** A shop sold 48 shirts in one week. This is 20% more than the previous week. How many shirts were sold in the previous week?

(Total for Question 12 is 2 marks)

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- 13** A square tile measures 12 cm on each side. A larger square is made by arranging 9 of these tiles in a 3 by 3 square. Work out the perimeter of the larger square in centimetres.

(Total for Question 13 is 2 marks)

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- 14** A train travels 180 km in 2 hours 15 minutes. Calculate its average speed in kilometres per hour, correct to 1 decimal place.

(Total for Question 14 is 2 marks)

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- 15** Amelia has three different sized ropes: 1.2 m, 85 cm and 0.5 m. She ties them end to end. Work out the total length in metres. Give your answer as a decimal.

(Total for Question 15 is 3 marks)

- 16** A pack contains red, blue and green counters in the ratio 3:4:5. There are 60 counters altogether. How many green counters are there?

(Total for Question 16 is 3 marks)

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- 17** The bar chart below shows the number of books borrowed from a school library in four months: January 120, February 85, March 150, April 95. Calculate the median number of books borrowed for these four months.

(Total for Question 17 is 3 marks)

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- 18** Callum has a 3-digit code. He knows the digits add to 12 and the code is an even number. One possible code is 384. Give another different 3-digit code that satisfies both conditions.

(Total for Question 18 is 2 marks)

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- 19** A cylindrical water tank has radius 1.5 m and height 2 m. Calculate the volume of the tank in cubic metres, giving your answer correct to 2 decimal places. Use  $\pi = 3.142$ .

(Total for Question 19 is 3 marks)

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- 20** A discount of 15% is taken off the price of a jacket. The sale price is £51. What was the original price? Give your answer to the nearest pence.

(Total for Question 20 is 2 marks)

# Mark scheme · EP.M139 GL Assessment Style Numerical Reasoning Paper 1

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## Question 1

- **B1** 56 cao
- **Answer: 56**

## Question 2

- **B1** 0.75 cao
- **Answer: 0.75**

## Question 3

- **B1** £8.00 cao
- **Answer: £8.00**

## Question 4

- (a) **B1** 36 cao
- (a) **Answer: 36**
- (b) **B1** 26 cao
- (b) **Answer: 26**

## Question 5

- **B1** 4,700 cao
- **Answer: 4,700**

## Question 6

- **M1** Convert times to minutes:  $2\text{h}35 = 155$ ,  $1\text{h}50 = 110$
- **A1** 265 minutes cao
- **Answer: 265 minutes**

## Question 7

- (a) **B1** 16 cao
- (a) **Answer: 16**
- (b) **B1** 13 cao
- (b) **Answer: 13**

## Question 8

- **M1** Find 1% of 200 ( $=2$ ) or convert:  $45\% = 0.45$ , then  $0.45 \times 200$  seen
- **A1** correct option B (90) cao
- **Answer: B) 90**

## Question 9

- **M1** Undo multiply by dividing:  $60/5 = 12$
- **A1** Original number =  $12 + 7 = 19$  cao
- **Answer: 19**

## Question 10

- **M1** Find flour per muffin:  $2.5 \text{ kg} = 5/2 \text{ kg}$ ;  $(5/2)/20 = 5/40 = 1/8 \text{ kg}$
- **A1** For 8 muffins:  $8 \times 1/8 = 1 \text{ kg}$  cao
- **Answer: 1 kg**

### Question 11

- **M1** Use angle sum 180: third =  $180 - (35 + 65)$
- **A1** Third angle = 80 degrees cao
- **Answer: 80 degrees**

### Question 12

- **M1** Let previous =  $x$ ;  $48 = x + 0.20x = 1.2x$  or recognise 48 is 120% so divide by 1.2
- **A1** Previous week =  $48 / 1.2 = 40$  shirts cao
- **Answer: 40 shirts**

### Question 13

- **M1** Side of larger square =  $3 \times 12 = 36$  cm
- **A1** Perimeter =  $4 \times 36 = 144$  cm cao
- **Answer: 144 cm**

### Question 14

- **M1** Convert time:  $2\text{h}15 = 2.25$  h and form speed =  $180 / 2.25$
- **A1** Speed = 80.0 km/h to 1 dp cao
- **Answer: 80.0 km/h**

### Question 15

- **M1** Convert all to metres:  $85 \text{ cm} = 0.85 \text{ m}$
- **M1** Add lengths:  $1.2 + 0.85 + 0.5$  seen
- **A1** Total = 2.55 m cao
- **Answer: 2.55 m**

### Question 16

- **M1** Find total parts:  $3+4+5 = 12$  and form  $60/12$
- **M1** Find one part =  $60/12 = 5$
- **A1** Green =  $5 \times 5 = 25$  cao
- **Answer: 25**

### Question 17

- **M1** Order the data: 85, 95, 120, 150 or show understanding of median for even set
- **M1** Find middle two values 95 and 120 and form their average
- **A1** Median =  $(95 + 120) / 2 = 107.5$  cao
- **Answer: 107.5**

### Question 18

- **B1** Any 3-digit even number with digits summing to 12, e.g. 642, 228, 930, 804, 174, 552 each acceptable
- **B1** Answer must be different to given example and a valid 3-digit even number with digit sum 12
- **Answer: One possible answer: 642**

### Question 19

- **M1** Use formula  $V = \pi r^2 h$  and substitute  $r = 1.5$ ,  $h = 2$
- **M1** Calculate  $r^2 = 2.25$  and  $3.142 \times 2.25 \times 2$  seen
- **A1** Volume =  $3.142 \times 2.25 \times 2 = 14.139 \sim 14.14 \text{ m}^3$  cao
- **Answer: 14.14 m<sup>3</sup>**

### Question 20

- **M1** Let original =  $x$ ; sale price =  $x - 0.15x = 0.85x$ , so  $x = 51 / 0.85$
- **A1** Original price =  $51 / 0.85 = £60.00$  cao to nearest pence
- **Answer: £60.00**