



EP.M158 Buckinghamshire Style Maths Paper 2

GL ASSESSMENT BUCKS-MOCK-2 · Calculators not allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** Work out $243 + 159$.

(Total for Question 1 is 1 mark)

- 2** A packet of seeds costs 85p. Ben buys 3 packets. How much does he pay?

(Total for Question 2 is 1 mark)

- 3** Write these fractions in order smallest to largest: $\frac{1}{2}$, $\frac{3}{8}$, $\frac{5}{8}$.

(Total for Question 3 is 1 mark)

- 4** A rectangle has width 7 cm and length 15 cm. Work out its area in cm^2 .

(Total for Question 4 is 2 marks)

- 5** Kai cycles 12 km in 30 minutes. At the same speed, how far will he cycle in 1 hour?

(Total for Question 5 is 2 marks)

6 State the next number in the sequence: 2, 6, 18, 54, ____.

(Total for Question 6 is 1 mark)

7 A shop reduces the price of a toy from £24 to £18. What is the percentage decrease? Give your answer to the nearest whole percent.

(Total for Question 7 is 2 marks)

8 Expand and simplify: $3(x + 4)$.

(Total for Question 8 is 3 marks)

9 How many centimetres are there in 2.5 metres?

(Total for Question 9 is 1 mark)

10 A car uses 6 litres of fuel to travel 90 km. How many kilometres per litre does it get? Give your answer to 1 decimal place.

(Total for Question 10 is 2 marks)

11 The angles at a point on a straight line total 180 degrees. In the diagram, one angle is $3x$ degrees and the other is $2x + 10$ degrees. Work out x and find the two angles.

(Total for Question 11 is 3 marks)

12 Write 0.375 as a fraction in its simplest form.

(Total for Question 12 is 1 mark)

13 A theatre has 240 seats. 35% of the seats are sold for a matinée performance. How many seats are sold? Give your answer to the nearest whole seat.

(Total for Question 13 is 2 marks)

14 What is the prime factorisation of 84? Express your answer using indices where appropriate.

(Total for Question 14 is 1 mark)

15 A bag contains 5 red, 4 blue and 3 green counters. One counter is taken at random. Work out the probability that it is either blue or green. Give your answer as a fraction in simplest form.

(Total for Question 15 is 3 marks)

16 Simplify $\frac{45}{60}$. Give your answer in lowest terms.

(Total for Question 16 is 2 marks)

17 A square has area 81 cm^2 . Work out the length of one side in cm.

(Total for Question 17 is 1 mark)

18 Convert 3 hours 45 minutes into minutes.

(Total for Question 18 is 3 marks)

19 A farmer has 210 litres of milk. He packs it into bottles of 1.5 litres. How many full bottles can he fill and how many litres are left over?

(Total for Question 19 is 4 marks)

20 A rectangular garden has length $(2x + 3)$ metres and width $(x - 1)$ metres. The area is 18 square metres. Find the value(s) of x .

(Total for Question 20 is 5 marks)

Mark scheme · EP.M158 Buckinghamshire Style Maths Paper 2

Question 1

- **B1** 402 cao
- **Answer:** 402 ($243 + 159 = 402$).

Question 2

- **B1** £2.55 cao
- **Answer:** £2.55 ($3 \times £0.85 = £2.55$).

Question 3

- **B1** $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$ cao
- **Answer:** $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$.

Question 4

- **M1** Correct method: multiply 7 by 15 or equivalent
- **A1** 105 cm^2 cao
- **Answer:** 105 cm^2 ($7 \times 15 = 105$).

Question 5

- **M1** Recognise 1 hour is twice 30 minutes and double the distance, or use speed = distance/time
- **A1** 24 km cao
- **Answer:** 24 km (12 km in 30 minutes so 24 km in 60 minutes).

Question 6

- **B1** 162 cao
- **Answer:** 162 (each term $\times 3$).

Question 7

- **M1** Method: $(24 - 18)/24 = 6/24$ or equivalent
- **A1** 25% cao
- **Answer:** 25% (decrease = $6/24 = 0.25 = 25\%$).

Question 8

- **M1** Multiply: $3x + 12$ seen
- **A1** $3x + 12$ cao
- **A1** Final simplified form $3x + 12$ cao
- **Answer:** $3x + 12$.

Question 9

- **B1** 250 cm cao
- **Answer:** 250 cm (1 m = 100 cm so 2.5 m = 250 cm).

Question 10

- **M1** Use $90/6$ or equivalent to find km per litre
- **A1** 15.0 km per litre cao
- **Answer:** 15.0 km per litre ($90 \div 6 = 15.0$).

Question 11

- **M1** Set up equation $3x + (2x + 10) = 180$
- **M1** Solve: $5x + 10 = 180 \Rightarrow 5x = 170 \Rightarrow x = 34$
- **A1** Angles are $3x = 102$ degrees and $2x + 10 = 78$ degrees cao
- **Answer:** $x = 34$; angles are 102 degrees and 78 degrees.

Question 12

- **B1** $\frac{3}{8}$ cao
- **Answer:** $\frac{3}{8}$ ($0.375 = \frac{375}{1000} = \frac{3}{8}$).

Question 13

- **M1** Method: 240×0.35 or $240 \times \frac{35}{100}$
- **A1** 84 seats cao
- **Answer:** 84 seats ($240 \times 0.35 = 84$).

Question 14

- **B1** $2^2 \times 3 \times 7$ cao
- **Answer:** $2^2 \times 3 \times 7$ ($84 = 4 \times 3 \times 7$).

Question 15

- **M1** Find total counters: $5 + 4 + 3 = 12$
- **M1** Find favourable outcomes: $4 + 3 = 7$
- **A1** Probability $\frac{7}{12}$ cao
- **Answer:** $\frac{7}{12}$.

Question 16

- **M1** Divide numerator and denominator by common factor 15 or show cancelling
- **A1** $\frac{3}{4}$ cao
- **Answer:** $\frac{3}{4}$ ($\frac{45}{60} = \frac{(15 \times 3)}{(15 \times 4)} = \frac{3}{4}$).

Question 17

- **B1** 9 cm cao
- **Answer:** 9 cm ($\sqrt{81} = 9$).

Question 18

- **M1** Convert hours to minutes: $3 \times 60 = 180$
- **M1** Add minutes: $180 + 45 = 225$
- **A1** 225 minutes cao
- **Answer:** 225 minutes.

Question 19

- **M1** Method to divide 210 by 1.5 or multiply numerator and denominator by 10 to use integers
- **M1** $210 \div 1.5 = 140$ seen (or $2100 \div 15 = 140$)
- **M1** State number of full bottles: 140
- **A1** 0 litres left cao
- **Answer:** 140 full bottles and 0 litres left over ($210 \div 1.5 = 140$).

Question 20

- **M1** Write equation $(2x + 3)(x - 1) = 18$
- **M1** Expand to form: $2x^2 + 3x - 2x - 3 = 18$ or $2x^2 + x - 3 = 18$
- **M1** Rearrange to $2x^2 + x - 21 = 0$ and attempt factor or quadratic formula
- **M1** Factorisation: $(2x + 7)(x - 3) = 0$ or show quadratic roots
- **A1** Final answers $x = 3$ or $x = -\frac{7}{2}$ with reason; only $x = 3$ acceptable for dimensions positive cao
- **Answer:** Equation gives $x = 3$ or $x = -\frac{7}{2}$; $x = 3$ only acceptable for the garden dimensions (length 9 m, width 2 m).