



EP.M145 CEM Style Numerical Reasoning Paper 3

CEM CEM-11PLUS-MOCK · Calculators not allowed · about 50 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

1 Multiply 24 by 6.

(Total for Question 1 is 1 mark)

2 A ticket costs £3.50. Mia buys 4 tickets. Work out the total cost.

(Total for Question 2 is 1 mark)

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

(Total for Question 3 is 1 mark)

4 What is 15% of 240?

(Total for Question 4 is 1 mark)

5 A shelf is 1.8 metres long. Convert this length to centimetres.

(Total for Question 5 is 1 mark)

6 There are 28 students. Three quarters of them go on a trip. How many go on the trip?

(Total for Question 6 is 1 mark)

7 Work out $7 \times 8 + 6$.

(Total for Question 7 is 1 mark)

8 A rectangle has sides 9 cm and 4 cm. Calculate its perimeter.

(Total for Question 8 is 1 mark)

9 A bag contains 5 red, 3 blue and 2 green counters. If one counter is taken at random, what is the probability it is blue? Give your answer as a fraction in lowest terms.

(Total for Question 9 is 1 mark)

10 Round 6.347 to one decimal place.

(Total for Question 10 is 1 mark)

11 Subtract 3.75 from 10. Give your answer as a decimal.

(Total for Question 11 is 1 mark)

12 A toy normally costs £18. It is reduced by 25%. How much does it cost now?

(Total for Question 12 is 1 mark)

13 James drives 150 km in 2 hours. At that speed how far does he drive in 5 hours?

(Total for Question 13 is 2 marks)

14 A recipe for 6 muffins uses 220 g of flour. How much flour is needed for 10 muffins?

(Total for Question 14 is 2 marks)

15 Ethan buys 3 shirts at £12 each and a pair of shoes at £28. He pays with a £100 note. How much change should he receive?

(Total for Question 15 is 2 marks)

16 A cyclist travelled 9 km in 30 minutes. At that pace how many minutes to travel 15 km?

(Total for Question 16 is 2 marks)

17 Work out $\frac{7}{8} + \frac{1}{4}$. Give your answer in a single fraction in lowest terms.

(Total for Question 17 is 2 marks)

18 A shop sells pencils in bundles of 12. If Hannah needs 95 pencils, how many bundles should she buy? Show working.

(Total for Question 18 is 2 marks)

19 A rectangle has area 96 cm^2 . Its width is 8 cm. Work out its length.

(Total for Question 19 is 3 marks)

20 A car journey of 200 km uses 16 litres of petrol. How many litres are needed for a 350 km journey at the same rate? Give your answer to 2 decimal places.

(Total for Question 20 is 3 marks)

Mark scheme · EP.M145 CEM Style Numerical Reasoning Paper 3

Question 1

- **B1** 144 cao
- **Answer:** 144

Question 2

- **B1** £14.00 cao
- **Answer:** £14.00

Question 3

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

Question 4

- **B1** 36 cao
- **Answer:** 36

Question 5

- **B1** 180 cm cao
- **Answer:** 180 cm

Question 6

- **B1** 21 cao
- **Answer:** 21

Question 7

- **B1** 62 cao
- **Answer:** 62

Question 8

- **B1** 26 cm cao
- **Answer:** 26 cm

Question 9

- **B1** $\frac{3}{10}$ cao
- **Answer:** $\frac{3}{10}$

Question 10

- **B1** 6.3 cao
- **Answer:** 6.3

Question 11

- **B1** 6.25 cao
- **Answer:** 6.25

Question 12

- **B1** £13.50 cao
- **Answer:** £13.50

Question 13

- **M1** Find speed 75 km/h or equivalent method
- **A1** 375 km cao
- **Answer:** 375 km

Question 14

- **M1** Use ratio $220/6 \times 10$ or equivalent method
- **A1** 366.67 g or 367 g to nearest g ft from method
- **Answer: Approximately 366.67 g (about 367 g)**

Question 15

- **M1** Calculate total cost $3 \times 12 + 28 = 36 + 28 = 64$ seen
- **A1** £36 change cao
- **Answer: £36**

Question 16

- **M1** Find rate 3 km per 10 minutes or 0.3 km/min seen
- **A1** 50 minutes cao
- **Answer: 50 minutes**

Question 17

- **M1** Convert to common denominator $7/8 + 2/8 (= 9/8)$ or equivalent
- **A1** $9/8$ cao
- **Answer: $9/8$**

Question 18

- **M1** Divide 95 by 12 to find 7 remainder 11 or equivalent
- **A1** 8 bundles cao
- **Answer: 8 bundles**

Question 19

- **M1** Use area = length $\times$ width or write length = area / width
- **M1** Compute $96 / 8 = 12$ seen
- **A1** 12 cm cao
- **Answer: 12 cm**

Question 20

- **M1** Find rate $16/200 = 0.08$ litres per km or equivalent
- **M1** Multiply $0.08 \times 350 (= 28)$ or set up ratio $16:200 = x:350$
- **A1** 28.00 litres cao
- **Answer: 28.00 litres**