



EP.M146 CEM Style Maths Mixed Section 1

CEM CEM-11PLUS-MOCK · Calculators not allowed · about 40 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

1 What is 7.5×12 ?

(Total for Question 1 is 1 mark)

2 A carton holds 9.6 litres of paint. How many whole 2-litre pots can be filled from 3 such cartons?

(Total for Question 2 is 1 mark)

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

(Total for Question 3 is 1 mark)

4 A shop reduces a jacket priced at £48 by 15%. What is the sale price to the nearest penny?

(Total for Question 4 is 1 mark)

5 A recipe for 8 muffins uses 250 g of flour. Tomas needs to make 20 muffins. Work out how much flour he needs in grams.

(Total for Question 5 is 3 marks)

- 6** A train journey takes 2 hours 24 minutes. How many minutes is this? Then find the average speed if the train travels 198 km in that time. Give your speed in km/h to one decimal place.

(Total for Question 6 is 3 marks)

- 7** What is the next prime number after 31?

(Total for Question 7 is 1 mark)

- 8** A rectangle has length 14 cm and width 6 cm. Calculate its perimeter.

(Total for Question 8 is 1 mark)

- 9** A class contains 24 pupils. $\frac{5}{8}$ of them are girls. How many boys are in the class?

(Total for Question 9 is 2 marks)

- 10** A pack of 12 chocolates costs £4.20. What is the cost of 5 chocolates?

(Total for Question 10 is 2 marks)

- 11** Round 0.04783 to 3 significant figures.

(Total for Question 11 is 1 mark)

12 A map has scale 1 cm represents 3 km. How many kilometres are represented by 7.5 cm?

(Total for Question 12 is 2 marks)

13 Priya buys 3 identical shirts and a pair of socks. The socks cost £4.50 and her total bill is £40.50. How much does one shirt cost?

(Total for Question 13 is 2 marks)

14 Find the value of $6^2 - 5^2$.

(Total for Question 14 is 1 mark)

15 Three fifths of a number is 150. Work out the number.

(Total for Question 15 is 3 marks)

16 A car uses 6.8 litres of fuel per 100 km. How many litres will it use to travel 275 km? Give your answer to one decimal place.

(Total for Question 16 is 3 marks)

- 17** A cyclist rides 40 km at 30 km/h and then 60 km at 60 km/h. Calculate the cyclist's average speed for the whole 100 km journey. Give your answer to one decimal place.

(Total for Question 17 is 3 marks)

- 18** £240 is shared in the ratio 3:5:4. Work out the amount received by the person with the middle share.

(Total for Question 18 is 3 marks)

- 19** Increase 120 by 15%. Work out the new value.

(Total for Question 19 is 3 marks)

- 20** A tank is $\frac{3}{4}$ full. After removing 45 litres, the tank is $\frac{1}{3}$ full. What is the capacity of the tank in litres?

(Total for Question 20 is 3 marks)

Mark scheme · EP.M146 CEM Style Maths Mixed Section 1

Question 1

- **B1** 90 cao
- **Answer: 90**

Question 2

- **B1** 14 cao
- **Answer: 14**

Question 3

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

Question 4

- **B1** £40.80 cao
- **Answer: £40.80**

Question 5

- **M1** method to scale recipe: $250/8 \times 20$ or equivalent seen
- **M1** intermediate value $250/8 = 31.25$ or $250/8 \times 20 = 625$ seen
- **A1** 625 g cao
- **Answer: 625 g**

Question 6

- **M1** convert 2 h 24 min to minutes: $2 \text{ h} = 120 \text{ min}$, $120 + 24 = 144$ seen
- **M1** method to find speed: convert time to hours $144/60 = 2.4$ and use speed = distance/time or equivalent
- **A1** 82.5 km/h cao
- **Answer: 82.5 km/h**

Question 7

- **B1** 37 cao
- **Answer: 37**

Question 8

- **B1** 40 cm cao
- **Answer: 40 cm**

Question 9

- **M1** method to find number of girls: $24 \times 5/8 = 15$ or equivalent
- **A1** 9 boys cao
- **Answer: 9**

Question 10

- **M1** method: unit cost $4.20/12 = 0.35$ or equivalent
- **A1** £1.75 cao
- **Answer: £1.75**

Question 11

- **B1** 0.0478 cao
- **Answer: 0.0478**

Question 12

- **M1** method: $7.5 \times 3 = 22.5$ seen
- **A1** 22.5 km cao
- **Answer: 22.5 km**

Question 13

- **M1** method: subtract socks $40.50 - 4.50 = 36.00$ or equivalent
- **A1** £12.00 cao
- **Answer: £12.00**

Question 14

- **B1** 11 cao
- **Answer: 11**

Question 15

- **M1** method: let number = N, $\frac{3}{5} N = 150$ or equivalent set-up
- **M1** method to isolate N: $N = 150 \times \frac{5}{3}$ or equivalent
- **A1** 250 cao
- **Answer: 250**

Question 16

- **M1** method: use proportion $\frac{6.8}{100} \times 275$ or equivalent
- **M1** calculate intermediate: 6.8×2.75 seen or $\frac{6.8 \times 275}{100}$
- **A1** 18.7 litres cao
- **Answer: 18.7 litres**

Question 17

- **M1** method: find times for each part: $\frac{40}{30}$ and $\frac{60}{60}$ or equivalent
- **M1** sum times correctly: $\frac{40}{30} = \frac{4}{3}$ h, $\frac{60}{60} = 1$ h, total time $\frac{7}{3}$ h (2.333...) or equivalent
- **A1** 42.9 km/h cao
- **Answer: 42.9 km/h**

Question 18

- **M1** method: total parts $3 + 5 + 4 = 12$ or equivalent
- **M1** method: middle share = $\frac{5}{12}$ of 240 or equivalent
- **A1** £100 cao
- **Answer: £100**

Question 19

- **M1** method: find 15% of 120 seen ($\frac{15}{100} \times 120$ or 0.15×120)
- **M1** intermediate calculation: $0.15 \times 120 = 18$ or equivalent
- **A1** 138 cao
- **Answer: 138**

Question 20

- **M1** method: let capacity = C, set up equation $\frac{3}{4} C - 45 = \frac{1}{3} C$ or equivalent
- **M1** method to solve: $(\frac{3}{4} - \frac{1}{3}) C = 45$ or equivalent and simplify fraction to $\frac{5}{12} C = 45$
- **A1** 108 litres cao
- **Answer: 108 litres**