



EP.M144 CEM Style Numerical Reasoning Paper 2

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

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

1 Calculate $18 + 27$.

(Total for Question 1 is 1 mark)

2 Work out $125 - 48$.

(Total for Question 2 is 1 mark)

3 Calculate 7×8 .

(Total for Question 3 is 1 mark)

4 Divide 84 by 7.

(Total for Question 4 is 1 mark)

5 Find 15% of 200.

(Total for Question 5 is 1 mark)

6 Work out $\frac{3}{4}$ of 64.

(Total for Question 6 is 1 mark)

7 A pack of pens costs £1.35. Find the cost of 6 packs.

(Total for Question 7 is 2 marks)

8 Five apples cost £3.50. What is the cost of one apple?

(Total for Question 8 is 1 mark)

9 A box contains puppies and kittens in the ratio 3:5. If there are 64 animals in total, how many puppies are there?

(Total for Question 9 is 2 marks)

10 Sarah cycles 12 km in 45 minutes. Work out her average speed in km/h.

(Total for Question 10 is 2 marks)

11 A train departs at 09:15 and runs for 2 hours 45 minutes. At what time does it arrive?

(Total for Question 11 is 1 mark)

12 Find the lowest common multiple of 12 and 8.

(Total for Question 12 is 1 mark)

13 Three consecutive even numbers add to 48. What is the largest number?

(Total for Question 13 is 1 mark)

14 A rectangle has perimeter 54 cm and length 15 cm. Find its width.

(Total for Question 14 is 1 mark)

15 Write 0.6 as a fraction in its simplest form.

(Total for Question 15 is 1 mark)

16 Calculate $\frac{7}{9}$ of 81.

(Total for Question 16 is 1 mark)

17 A baker uses 250 g of flour for each loaf. He has 5 kg of flour. How many loaves can he make?

(Total for Question 17 is 1 mark)

18 A pair of trousers costs £48. After a 25% reduction what is the sale price?

(Total for Question 18 is 1 mark)

19 A box contains 4 red, 5 blue and 3 green counters. If one counter is chosen at random, what is the probability it is blue?

(Total for Question 19 is 1 mark)

20 Solve $x + 7 = 20$.

(Total for Question 20 is 1 mark)

21 Two numbers are in the ratio 4:7. Their total is 242. Find the smaller number.

(Total for Question 21 is 3 marks)

22 A cake recipe for 8 servings needs 350 g of sugar. How many grams of sugar are needed for 5 servings?

(Total for Question 22 is 3 marks)

23 A car uses 12.5 litres of fuel to travel 150 miles. How many litres does it use per 100 miles? Give your answer to 2 decimal places.

(Total for Question 23 is 3 marks)

24 Solve $3x + 5 = 2x + 17$.

(Total for Question 24 is 3 marks)

25 A book costing £48 is increased by 12% then reduced by 12%. Work out the final price to the nearest penny.

(Total for Question 25 is 3 marks)

26 From 5 toppings choose 2 different toppings for a pizza. How many different pairs are possible?

(Total for Question 26 is 2 marks)

Mark scheme · EP.M144 CEM Style Numerical Reasoning Paper 2

Question 1

- **B1** 45 cao
- **Answer:** 45

Question 2

- **B1** 77 cao
- **Answer:** 77

Question 3

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

Question 4

- **B1** 12 cao
- **Answer:** 12

Question 5

- **B1** 30 cao
- **Answer:** 30

Question 6

- **B1** 48 cao
- **Answer:** 48

Question 7

- **M1** 6×1.35 or clear method seen
- **A1** £8.10 cao
- **Answer:** £8.10

Question 8

- **B1** 0.70 or 70p cao
- **Answer:** 70p

Question 9

- **M1** $64/8$ (=8) or identification of one part value
- **A1** 24 cao
- **Answer:** 24

Question 10

- **M1** $12 / (45/60)$ or equivalent method seen
- **A1** 16 cao
- **Answer:** 16 km/h

Question 11

- **B1** 12:00 cao
- **Answer:** 12:00

Question 12

- **B1** 24 cao
- **Answer:** 24

Question 13

- **B1** 18 cao
- **Answer: 18**

Question 14

- **B1** 12 cm cao
- **Answer: 12 cm**

Question 15

- **B1** $\frac{3}{5}$ cao
- **Answer: $\frac{3}{5}$**

Question 16

- **B1** 63 cao
- **Answer: 63**

Question 17

- **B1** 20 cao
- **Answer: 20**

Question 18

- **B1** £36.00 cao
- **Answer: £36.00**

Question 19

- **B1** $\frac{5}{12}$ cao
- **Answer: $\frac{5}{12}$**

Question 20

- **B1** 13 cao
- **Answer: 13**

Question 21

- **M1** Divide 242 by total parts 11 seen ($242/11$)
- **M1** Multiply part size by 4 seen
- **A1** 88 cao
- **Answer: 88**

Question 22

- **M1** Divide 350 by 8 to find amount per serving
- **M1** Multiply the per-serving amount by 5
- **A1** 218.75 g cao
- **Answer: 218.75 g**

Question 23

- **M1** Find litres per mile: $12.5/150$ or equivalent
- **M1** Scale to 100 miles ($\times 100$) seen
- **A1** 8.33 to 2 d.p. cao
- **Answer: 8.33 litres**

Question 24

- **M1** Eliminate terms: $3x - 2x$ or show $5 = 17 - 2x$ or equivalent
- **M1** Find $x = 12$ shown
- **A1** 12 cao
- **Answer: 12**

Question 25

- **M1** Apply 12% increase: 48×1.12 seen
- **M1** Apply 12% decrease to new price: $x \times 0.88$ seen
- **A1** £47.31 cao
- **Answer: £47.31**

Question 26

- **M1** Use combination or show $5 \times 4 / 2$ method
- **A1** 10 cao
- **Answer: 10**