



CE.M43 Maths: Full Practice Paper (Core, Non-Calculator, Set 7)

ISEB COMMON ENTRANCE CE.M43 · Calculators not allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Time allowed: 60 minutes. Answer ALL 25 questions. Write your answers in the spaces provided. You are NOT allowed to use a calculator. You must show all your working; marks are available for a correct method as well as for the final answer. The number of marks for each question, or part-question, is shown in brackets. This seventh Core (Level 2) paper covers the same breadth as Papers 1-6: number, fractions/decimals/percentages, ratio, algebra, geometry, measures, coordinates, statistics and probability, with entirely different questions.

- 1 Write the number three hundred and eighteen thousand and twenty-four in figures. (1 mark)

(Total for Question 1 is 1 mark)

- 2 Work out $9124 - 4867$ (1 mark)

(Total for Question 2 is 1 mark)

- 3 Find $\frac{3}{8}$ of 96 (1 mark)

(Total for Question 3 is 1 mark)

- 4 Four angles meet at a point. They are 110 degrees, 65 degrees, 95 degrees and n degrees. Work out the size of angle n (1 mark)

(Total for Question 4 is 1 mark)

- 5 Simplify $9m + 4n - 6m + 8n$ (1 mark)

(Total for Question 5 is 1 mark)

- 6** One morning in Braemar, the temperature was -8 degrees C. By midday it had risen by 13 degrees C. Work out the midday temperature. (2 marks)

(Total for Question 6 is 2 marks)

- 7** Convert $\frac{23}{25}$ to a percentage. (2 marks)

(Total for Question 7 is 2 marks)

- 8** Simplify the ratio 84:60 fully. (2 marks)

(Total for Question 8 is 2 marks)

- 9** Solve $6x - 11 = 37$ (2 marks)

(Total for Question 9 is 2 marks)

- 10** A triangle has a base of 16 cm and a perpendicular height of 11 cm. Work out its area. (2 marks)

(Total for Question 10 is 2 marks)

- 11** Tariq needs 3.6 litres of paint for a mural. He has five tins, each containing 650 ml. Show working to decide whether he has enough paint, and if not, say how much more he needs. (2 marks)

(Total for Question 11 is 2 marks)

- 12** Point P has coordinates (3, 10) and point Q has coordinates (15, 2). Find the coordinates of the midpoint of PQ. (2 marks)

(Total for Question 12 is 2 marks)

- 13** In a general knowledge quiz, six pupils scored the following points: 22, 18, 25, 15, 21, 19. Work out the mean score. (2 marks)

(Total for Question 13 is 2 marks)

- 14** A jar contains 8 red sweets, 7 blue sweets and 5 yellow sweets. Priya takes one sweet from the jar at random.

(a) Find the probability that it is blue. (1 mark) (1)

(b) Find the probability that it is NOT red. (1 mark) (1)

(Total for Question 14 is 2 marks)

- 15** Write down all the factors of 210 that are also prime numbers. (2 marks)

(Total for Question 15 is 2 marks)

- 16** Expand and simplify $5(4x + 3) - 3(x - 4)$ (3 marks)

(Total for Question 16 is 3 marks)

17 In triangle ABC, angle A = 52 degrees, angle B = $(3x + 8)$ degrees and angle C = $5x$ degrees.

(a) Form an equation in x and solve it. (2 marks) **(2)**

(b) Work out the size of angle B. (1 mark) **(1)**

(Total for Question 17 is 3 marks)

18 Ravi and Sofia share 195 sweets in the ratio 5:8. Work out how many sweets Sofia receives. (3 marks)

(Total for Question 18 is 3 marks)

19 A bike costs 96 pounds. In a sale, the price is reduced by 35%. Work out the sale price. (3 marks)

(Total for Question 19 is 3 marks)

20 Mrs Okafor's garden in Bristol is a rectangle measuring 20 m by 14 m. A rectangular pond measuring 5 m by 3 m sits in one corner (the pond is not planting space).

(a) Work out the area of the whole rectangular garden. (1 mark) (1)

(b) Work out the area of the pond. (1 mark) (1)

(c) Work out the area of the garden that is planting space (not the pond). (2 marks) (2)

(Total for Question 20 is 4 marks)

21 A pie chart was used to show how 180 students travelled to a school trip. It shows that they travelled by Coach (angle 150 degrees), Car (angle 90 degrees), and Walk (angle 80 degrees). The rest travelled by Bike.

(a) Work out the angle for the Bike sector of the pie chart. (2 marks) (2)

(b) Work out how many of the 180 students travelled by Bike. (2 marks) (2)

(Total for Question 21 is 4 marks)

22 Layla is z years old. Her older brother Tomas is 7 years older than three times Layla's age. The sum of their ages is 71.

(a) Write down an equation in z to represent this information. (1 mark) (1)

(b) Solve your equation to find Layla's age. (2 marks) (2)

(c) Find Tomas's age. (1 mark) (1)

(Total for Question 22 is 4 marks)

23 A craft shop sells fabric for 55p per metre and ribbon spools for 80p each. Mia buys 7 metres of fabric and 3 ribbon spools, and pays with a 20 pound note.

(a) Work out the total cost of the fabric. (1 mark) (1)

(b) Work out the total cost of the ribbon spools. (1 mark) (1)

(c) Work out how much change Mia should receive from her 20 pound note. (3 marks) (3)

(Total for Question 23 is 5 marks)

24 A circular pond in a park in Bath has a diameter of 84 cm. Take $\pi = 22/7$.

(a) Work out the radius of the pond. (1 mark) (1)

.....
(b) Work out the circumference of the pond. (2 marks) (2)

.....
(c) A low fence needs to be built 4.5 cm out from the edge of the pond all the way round. Work out the diameter of the circle that the fence forms. (2 marks) (2)

.....
(Total for Question 24 is 5 marks)

25 At a summer fair, a profit of 630 pounds is shared between the art club and the drama club in the ratio 4:5.

(a) Work out how much money the art club receives. (2 marks) (2)

.....
(b) The art club then spends 20% of its share on paint. Work out how much money is spent on paint. (2 marks) (2)

.....
(c) Work out how much money the art club has left after this spending. (2 marks) (2)

.....
(Total for Question 25 is 6 marks)

Mark scheme • CE.M43 Maths: Full Practice Paper (Core, Non-Calculator, Set 7)

Question 1

- **B1** 318024 cao
- **Answer: 318024**

Question 2

- **B1** 4257 cao
- **Answer: 4257**

Question 3

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

Question 4

- **B1** 90 (degrees) cao
- **Answer: 90 degrees**

Question 5

- **B1** $3m + 12n$ cao
- **Answer: $3m + 12n$**

Question 6

- **M1** $-8 + 13$ (correct method)
- **A1** 5 (degrees C) cao
- **Answer: 5 degrees C**

Question 7

- **M1** $23/25 = 92/100$ or equivalent complete method
- **A1** 92% cao
- **Answer: 92%**

Question 8

- **M1** divides both parts by a common factor (e.g. by 4, 6 or 12)
- **A1** 7:5 cao (fully simplified)
- **Answer: 7:5**

Question 9

- **M1** $6x = 48$ (adds 11 to both sides)
- **A1** $x = 8$ cao
- **Answer: $x = 8$**

Question 10

- **M1** $1/2 \times 16 \times 11$ or equivalent complete method
- **A1** 88 cm^2 cao
- **Answer: 88 cm^2**

Question 11

- **M1** $5 \times 650 = 3250$ ml (3.25 litres)
- **A1** No, he does not have enough; he is 350 ml (0.35 litres) short
- **Answer: No, he is 350 ml short of the paint he needs**

Question 12

- **M1** $((3+15)/2, (10+2)/2)$ or equivalent complete method
- **A1** (9, 6) cao
- **Answer: (9, 6)**

Question 13

- **M1** $22+18+25+15+21+19 (= 120)$
- **A1** 20 (points) cao
- **Answer: 20 points**

Question 14

- (a) **B1** $7/20$ oe cao
- (a) **Answer: $7/20$**
- (b) **B1** $3/5$ oe cao
- (b) **Answer: $3/5$**

Question 15

- **M1** a correct list, or attempt at a list, of the factors of 210
- **A1** 2, 3, 5, 7 (all four, no extras) cao
- **Answer: 2, 3, 5, 7**

Question 16

- **M1** $20x + 15$ (correct first expansion)
- **M1** $-3x + 12$ (correct second expansion, signs handled correctly)
- **A1** $17x + 27$ cao
- **Answer: $17x + 27$**

Question 17

- (a) **M1** $52 + (3x+8) + 5x = 180$ oe
- (a) **A1** $x = 15$ cao
- (a) **Answer: $x = 15$**
- (b) **B1** 53 (degrees), follow through 3 x their $x + 8$
- (b) **Answer: 53 degrees**

Question 18

- **M1** identifies 13 total parts (5 + 8)
- **M1** $195 / 13 (= 15)$, the value of one part
- **A1** 120 (sweets) cao
- **Answer: 120 sweets**

Question 19

- **M1** finds 35% of 96 (e.g. $10\% = 9.6$ and $35\% = 9.6 \times 3.5 = 33.6$)
- **M1** $96 - 33.6$ (subtracts the discount from the original price)
- **A1** 62.40 pounds cao
- **Answer: 62.40 pounds**

Question 20

- (a) **B1** 280 m^2 cao
- (a) **Answer: 280 m^2**
- (b) **B1** 15 m^2 cao
- (b) **Answer: 15 m^2**
- (c) **M1** $280 - 15$ (follow through their (a) and (b))
- (c) **A1** 265 m^2 cao
- (c) **Answer: 265 m^2**

Question 21

- (a) **M1** $360 - (150 + 90 + 80)$
- (a) **A1** 40 (degrees) cao
- (a) **Answer: 40 degrees**
- (b) **M1** $(\text{their (a)} / 360) \times 180$
- (b) **A1** 20 (students) cao
- (b) **Answer: 20 students**

Question 22

- (a) **B1** $z + (3z + 7) = 71$ oe
- (a) **Answer: $z + (3z + 7) = 71$**
- (b) **M1** $4z + 7 = 71$ leading to $4z = 64$
- (b) **A1** $z = 16$ cao
- (b) **Answer: 16 years old**
- (c) **B1** 55 (follow through 3 x their $z + 7$)
- (c) **Answer: 55 years old**

Question 23

- (a) **B1** 3.85 pounds (385p) cao
- (a) **Answer: 3.85 pounds**
- (b) **B1** 2.40 pounds (240p) cao
- (b) **Answer: 2.40 pounds**
- (c) **M1** $3.85 + 2.40$ (follow through their (a) and (b)), the total cost
- (c) **M1** $20.00 - \text{their total cost}$
- (c) **A1** 13.75 pounds cao
- (c) **Answer: 13.75 pounds**

Question 24

- (a) **B1** 42 cm cao
- (a) **Answer: 42 cm**
- (b) **M1** $22/7 \times 84$ (or $2 \times 22/7 \times 42$)
- (b) **A1** 264 cm cao
- (b) **Answer: 264 cm**
- (c) **M1** $84 + 2 \times 4.5$ (adds the overhang to both sides of the diameter)
- (c) **A1** 93 cm cao
- (c) **Answer: 93 cm**

Question 25

- (a) **M1** $630 / 9 (= 70)$, the value of one part (9 total parts)
- (a) **A1** 280 pounds cao
- **(a) Answer: 280 pounds**
- (b) **M1** their (a) $\times 20/100$ (finds 20%)
- (b) **A1** 56 pounds cao
- **(b) Answer: 56 pounds**
- (c) **M1** their (a) - their (b)
- (c) **A1** 224 pounds cao
- **(c) Answer: 224 pounds**