



CE.M41 Maths: Full Practice Paper (Core, Non-Calculator, Set 6)

ISEB COMMON ENTRANCE CE.M41 · Calculators not allowed · about 60 minutes

Total Marks

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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 sixth Core (Level 2) paper covers the same breadth as Papers 1-5: number, fractions/decimals/percentages, ratio, algebra, geometry, measures, coordinates, statistics and probability, with entirely different questions.

- 1 Write the number two hundred and six thousand and forty-seven in figures. (1 mark)

(Total for Question 1 is 1 mark)

- 2 Work out $8256 - 3789$ (1 mark)

(Total for Question 2 is 1 mark)

- 3 Find $\frac{2}{7}$ of 91 (1 mark)

(Total for Question 3 is 1 mark)

- 4 Four angles meet at a point. They are 95 degrees, 130 degrees, 60 degrees and m degrees. Work out the size of angle m (1 mark)

(Total for Question 4 is 1 mark)

- 5 Simplify $8p + 3q - 5p + 7q$ (1 mark)

(Total for Question 5 is 1 mark)

- 6** One morning in Fort William, the temperature was -5 degrees C. By midday it had risen by 9 degrees C. Work out the midday temperature. (2 marks)

(Total for Question 6 is 2 marks)

- 7** Convert $17/20$ to a percentage. (2 marks)

(Total for Question 7 is 2 marks)

- 8** Simplify the ratio 72:48 fully. (2 marks)

(Total for Question 8 is 2 marks)

- 9** Solve $7x - 9 = 40$ (2 marks)

(Total for Question 9 is 2 marks)

- 10** A triangle has a base of 14 cm and a perpendicular height of 9 cm. Work out its area. (2 marks)

(Total for Question 10 is 2 marks)

- 11** Freya needs 2.4 litres of lemonade for a party. She has six bottles, each containing 350 ml. Show working to decide whether she has enough lemonade, and if not, say how much more she needs. (2 marks)

(Total for Question 11 is 2 marks)

- 12** Point P has coordinates (2, 9) and point Q has coordinates (12, 1). Find the coordinates of the midpoint of PQ. (2 marks)

(Total for Question 12 is 2 marks)

- 13** In a spelling bee, six pupils scored the following points: 18, 25, 14, 22, 19, 16. Work out the mean score. (2 marks)

(Total for Question 13 is 2 marks)

- 14** A basket contains 9 red apples, 6 green apples and 5 yellow apples. Priya takes one apple from the basket at random.

(a) Find the probability that it is green. (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 198 that are also prime numbers. (2 marks)

(Total for Question 15 is 2 marks)

- 16** Expand and simplify $6(3x + 4) - 5(x - 2)$ (3 marks)

(Total for Question 16 is 3 marks)

17 In triangle PQR, angle P = 48 degrees, angle Q = $(4x + 6)$ degrees and angle R = $2x$ degrees.

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

(2)

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

(1)

(Total for Question 17 is 3 marks)

18 Jamal and Olamide share 154 stickers in the ratio 4:7. Work out how many stickers Olamide receives. (3 marks)

(Total for Question 18 is 3 marks)

19 A jacket costs 84 pounds. In a sale, the price is reduced by 30%. Work out the sale price. (3 marks)

(Total for Question 19 is 3 marks)

20 Mr Diallo's allotment in Leicester is a rectangle measuring 18 m by 12 m. A rectangular shed measuring 4 m by 3 m stands in one corner (the shed is not growing space).

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

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

.....
(c) Work out the area of the allotment that is growing space (not the shed). (2 marks) (2)

.....
(Total for Question 20 is 4 marks)

21 A pie chart was used to show how 144 students travelled to a school fair. It shows that they travelled by Walking (angle 160 degrees), Bus (angle 100 degrees), and Bicycle (angle 60 degrees). The rest travelled by Car.

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

.....
(b) Work out how many of the 144 students travelled by Car. (2 marks) (2)

.....
(Total for Question 21 is 4 marks)

22 Ronan is y years old. His older sister Aoife is 5 years older than four times Ronan's age. The sum of their ages is 65.

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

.....

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

.....

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

.....

(Total for Question 22 is 4 marks)

23 A craft shop sells ribbon for 45p per metre and buttons for 65p each. Elif buys 6 metres of ribbon and 4 buttons, and pays with a 10 pound note.

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

.....

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

.....

(c) Work out how much change Elif should receive from her 10 pound note. (3 marks) (3)

.....

(Total for Question 23 is 5 marks)

24 A circular flower bed in a park in Chester has a diameter of 98 cm. Take $\pi = 22/7$.

(a) Work out the radius of the flower bed. (1 mark) (1)

.....

(b) Work out the circumference of the flower bed. (2 marks) (2)

.....

(c) A low fence needs to be built 3.5 cm out from the edge of the flower bed 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 school fete, a profit of 720 pounds is shared between the music fund and the sports fund in the ratio 5:7.

(a) Work out how much money the music fund receives. (2 marks) (2)

.....

(b) The music fund then spends 15% of its share on new sheet music. Work out how much money is spent on sheet music. (2 marks) (2)

.....

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

.....

(Total for Question 25 is 6 marks)

Mark scheme • CE.M41 Maths: Full Practice Paper (Core, Non-Calculator, Set 6)

Question 1

- **B1** 206047 cao
- **Answer: 206047**

Question 2

- **B1** 4467 cao
- **Answer: 4467**

Question 3

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

Question 4

- **B1** 75 (degrees) cao
- **Answer: 75 degrees**

Question 5

- **B1** $3p + 10q$ cao
- **Answer: $3p + 10q$**

Question 6

- **M1** $-5 + 9$ (correct method)
- **A1** 4 (degrees C) cao
- **Answer: 4 degrees C**

Question 7

- **M1** $17/20 = 85/100$ or equivalent complete method
- **A1** 85% cao
- **Answer: 85%**

Question 8

- **M1** divides both parts by a common factor (e.g. by 4, 8 or 24)
- **A1** 3:2 cao (fully simplified)
- **Answer: 3:2**

Question 9

- **M1** $7x = 49$ (adds 9 to both sides)
- **A1** $x = 7$ cao
- **Answer: $x = 7$**

Question 10

- **M1** $1/2 \times 14 \times 9$ or equivalent complete method
- **A1** 63 cm^2 cao
- **Answer: 63 cm^2**

Question 11

- **M1** $6 \times 350 = 2100$ ml (2.1 litres)
- **A1** No, she does not have enough; she is 300 ml (0.3 litres) short
- **Answer: No, she is 300 ml short of the lemonade she needs**

Question 12

- **M1** $((2+12)/2, (9+1)/2)$ or equivalent complete method
- **A1** (7, 5) cao
- **Answer: (7, 5)**

Question 13

- **M1** $18+25+14+22+19+16 (= 114)$
- **A1** 19 (points) cao
- **Answer: 19 points**

Question 14

- (a) **B1** $3/10$ oe cao
- (a) **Answer: $3/10$**
- (b) **B1** $11/20$ oe cao
- (b) **Answer: $11/20$**

Question 15

- **M1** a correct list, or attempt at a list, of the factors of 198
- **A1** 2, 3, 11 (all three, no extras) cao
- **Answer: 2, 3, 11**

Question 16

- **M1** $18x + 24$ (correct first expansion)
- **M1** $-5x + 10$ (correct second expansion, signs handled correctly)
- **A1** $13x + 34$ cao
- **Answer: $13x + 34$**

Question 17

- (a) **M1** $48 + (4x+6) + 2x = 180$ oe
- (a) **A1** $x = 21$ cao
- (a) **Answer: $x = 21$**
- (b) **B1** 90 (degrees), follow through 4 x their $x + 6$
- (b) **Answer: 90 degrees**

Question 18

- **M1** identifies 11 total parts (4 + 7)
- **M1** $154 / 11 (= 14)$, the value of one part
- **A1** 98 (stickers) cao
- **Answer: 98 stickers**

Question 19

- **M1** finds 30% of 84 (e.g. $10\% = 8.4$ and $30\% = 8.4 \times 3 = 25.2$)
- **M1** $84 - 25.2$ (subtracts the discount from the original price)
- **A1** 58.80 pounds cao
- **Answer: 58.80 pounds**

Question 20

- (a) **B1** 216 m^2 cao
- **(a) Answer: 216 m^2**
- (b) **B1** 12 m^2 cao
- **(b) Answer: 12 m^2**
- (c) **M1** $216 - 12$ (follow through their (a) and (b))
- (c) **A1** 204 m^2 cao
- **(c) Answer: 204 m^2**

Question 21

- (a) **M1** $360 - (160 + 100 + 60)$
- (a) **A1** 40 (degrees) cao
- **(a) Answer: 40 degrees**
- (b) **M1** $(\text{their (a)} / 360) \times 144$
- (b) **A1** 16 (students) cao
- **(b) Answer: 16 students**

Question 22

- (a) **B1** $y + (4y + 5) = 65$ oe
- **(a) Answer: $y + (4y + 5) = 65$**
- (b) **M1** $5y + 5 = 65$ leading to $5y = 60$
- (b) **A1** $y = 12$ cao
- **(b) Answer: 12 years old**
- (c) **B1** 53 (follow through $4 \times \text{their } y + 5$)
- **(c) Answer: 53 years old**

Question 23

- (a) **B1** 2.70 pounds (270p) cao
- **(a) Answer: 2.70 pounds**
- (b) **B1** 2.60 pounds (260p) cao
- **(b) Answer: 2.60 pounds**
- (c) **M1** $2.70 + 2.60$ (follow through their (a) and (b)), the total cost
- (c) **M1** $10.00 - \text{their total cost}$
- (c) **A1** 4.70 pounds cao
- **(c) Answer: 4.70 pounds**

Question 24

- (a) **B1** 49 cm cao
- **(a) Answer: 49 cm**
- (b) **M1** $22/7 \times 98$ (or $2 \times 22/7 \times 49$)
- (b) **A1** 308 cm cao
- **(b) Answer: 308 cm**
- (c) **M1** $98 + 2 \times 3.5$ (adds the overhang to both sides of the diameter)
- (c) **A1** 105 cm cao
- **(c) Answer: 105 cm**

Question 25

- (a) **M1** $720 / 12 (= 60)$, the value of one part (12 total parts)
- (a) **A1** 300 pounds cao
- **(a) Answer: 300 pounds**
- (b) **M1** their (a) $\times 15/100$ (finds 15%)
- (b) **A1** 45 pounds cao
- **(b) Answer: 45 pounds**
- (c) **M1** their (a) - their (b)
- (c) **A1** 255 pounds cao
- **(c) Answer: 255 pounds**