



CE.M42 Maths: Full Practice Paper (Core, Calculator, Set 6)

ISEB COMMON ENTRANCE CE.M42 · Calculator 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 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) calculator paper covers the whole Core syllabus: number, fractions/decimals/percentages, ratio, algebra, geometry, measures, coordinates, statistics and probability, using different questions from the first five Core calculator papers (CE.M15, CE.M21, CE.M28, CE.M32 and CE.M37).

- 1 One evening in Aberdeen, the temperature was 3 degrees C. Overnight it fell by 8 degrees C. Work out the temperature by morning. (1 mark)

(Total for Question 1 is 1 mark)

- 2 Work out $638 + 457$. (1 mark)

(Total for Question 2 is 1 mark)

- 3 Work out $803 - 366$. (1 mark)

(Total for Question 3 is 1 mark)

- 4 Write these numbers in order of size, smallest first: 0.6, 0.16, 0.61, 0.06 (2 marks)

(Total for Question 4 is 2 marks)

5 Work out $\frac{3}{8}$ of 176. (2 marks)

(Total for Question 5 is 2 marks)

6 A pair of headphones in a shop in Cardiff costs 84 pounds. In a sale it is reduced by 25%. Work out the amount of the discount. (2 marks)

(Total for Question 6 is 2 marks)

7 Amirah and Ben share 320 pounds in the ratio 5:3. Work out how much money Ben receives. (3 marks)

(Total for Question 7 is 3 marks)

8 Simplify $7a + 5b - 3a + 8b$. (2 marks)

(Total for Question 8 is 2 marks)

9 Solve these two equations.

(a) Solve $9x - 14 = 40$. (2 marks) (2)

(b) Solve $\frac{x}{4} + 5 = 11$. (2 marks) (2)

(Total for Question 9 is 4 marks)

- 10** Two angles of a triangle are 63 degrees and 48 degrees. Work out the size of the third angle. (2 marks)

(Total for Question 10 is 2 marks)

- 11** A rectangle has length 19 cm and width 7 cm.

(a) Work out the area of the rectangle. (1 mark) (1)

(b) Work out the perimeter of the rectangle. (2 marks) (2)

(Total for Question 11 is 3 marks)

- 12** A cuboid has length 9 cm, width 4 cm and height 6 cm. Work out its volume. (3 marks)

(Total for Question 12 is 3 marks)

- 13** Convert 3175 grams into kilograms. (2 marks)

(Total for Question 13 is 2 marks)

- 14** On 24/07/2026, a train leaves a station in Exeter at 09:52 and arrives in London at 12:18. Work out how long the journey took. Give your answer in hours and minutes. (3 marks)

(Total for Question 14 is 3 marks)

- 15** A 400 g bag of rice costs 1.80 pounds and a 900 g bag of the same rice costs 3.87 pounds. Work out which bag gives better value for money. Show your working. (2 marks)

(Total for Question 15 is 2 marks)

- 16** The number of texts sent by a class over five days were: 46, 38, 52, 29, 40. Work out the mean number of texts. (3 marks)

(Total for Question 16 is 3 marks)

- 17** A box contains 9 red counters, 6 blue counters and 5 green counters. A counter is picked at random. Work out the probability that it is green. (2 marks)

(Total for Question 17 is 2 marks)

- 18** Here are the first four terms of a sequence: 5, 11, 17, 23, ... Find the 15th term of the sequence. (2 marks)

(Total for Question 18 is 2 marks)

- 19** Point A has coordinates (4, 11) and point B has coordinates (16, 3). Work out the coordinates of the midpoint of AB. (2 marks)

(Total for Question 19 is 2 marks)

- 20** A laptop originally costs 620 pounds. The price is first reduced by 15% in a sale, and then a further 20 pounds is taken off the sale price. Work out the final price of the laptop. (3 marks)

(Total for Question 20 is 3 marks)

- 21** A cyclist named Idris trains near Bristol.

(a) Idris cycles 5.4 km in 1.2 hours. Work out his average speed in km/h. (1 mark) (1)

(b) Idris then cycles for a further 50 minutes at the same average speed. Work out the extra distance he cycles. (2 marks) (2)

(Total for Question 21 is 3 marks)

- 22** A market stall in Norwich buys scarves for 8 pounds each and sells them for 11.60 pounds each.

(a) Work out the stall's profit as a percentage of the price they paid. (2 marks) (2)

(b) The stall then reduces the selling price by 20% for a clearance sale. Work out the sale price. (2 marks) (2)

(Total for Question 22 is 4 marks)

23 Farah thinks of a number.

- (a) She multiplies her number by 4, then adds 9. The result is 65. Write down an equation in f to represent this, where f is Farah's number. (1 mark) (1)

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- (b) Solve your equation to find the value of f . (2 marks) (2)

.....

- (c) Farah's friend Idil's number is 5 less than twice Farah's number. Find Idil's number. (1 mark) (1)

.....

(Total for Question 23 is 4 marks)

24 An L-shaped playground belonging to a school in Perth is made from two rectangles. The playground measures 15 m by 9 m overall, with a rectangular section measuring 4 m by 3 m removed from one corner for a store room.

- (a) Work out the area of the playground. (3 marks) (3)

.....

- (b) Rubber matting costs 6.20 pounds per square metre. Work out the cost of matting the whole playground, giving your answer to the nearest 10 pounds. (1 mark) (1)

.....

(Total for Question 24 is 4 marks)

25 In a class of 24 pupils, the mean mark in a science test was 58%. In a second class of 26 pupils, the mean mark was 71%. Work out the mean mark for all 50 pupils, giving your answer correct to 1 decimal place. (4 marks)

(Total for Question 25 is 4 marks)

Mark scheme • CE.M42 Maths: Full Practice Paper (Core, Calculator, Set 6)

Question 1

- **B1** -5 (degrees C) cao
- **Answer:** -5 degrees C

Question 2

- **B1** 1095 cao
- **Answer:** 1095

Question 3

- **B1** 437 cao
- **Answer:** 437

Question 4

- **M1** evidence of comparing place value, e.g. writing 0.60, 0.16, 0.61, 0.06
- **A1** 0.06, 0.16, 0.6, 0.61 all in correct order cao
- **Answer:** 0.06, 0.16, 0.6, 0.61

Question 5

- **M1** $176 / 8 (= 22)$ oe
- **A1** 66 cao
- **Answer:** 66

Question 6

- **M1** $84 / 4 (= 21)$ oe, or equivalent method (e.g. 84×0.25)
- **A1** 21 pounds cao
- **Answer:** 21 pounds

Question 7

- **M1** identifies 8 total parts ($5 + 3$)
- **M1** $320 / 8 (= 40)$, the value of one part
- **A1** 120 pounds cao
- **Answer:** 120 pounds

Question 8

- **M1** correctly collects a terms or b terms ($4a$ or $13b$ seen)
- **A1** $4a + 13b$ cao
- **Answer:** $4a + 13b$

Question 9

- (a) **M1** $9x = 54$ (adds 14 to both sides)
- (a) **A1** $x = 6$ cao
- (a) **Answer:** $x = 6$
- (b) **M1** $x/4 = 6$ (subtracts 5 from both sides)
- (b) **A1** $x = 24$ cao
- (b) **Answer:** $x = 24$

Question 10

- **M1** $180 - 63 - 48$ oe
- **A1** 69 (degrees) cao
- **Answer:** 69 degrees

Question 11

- (a) **B1** 133 cm^2 cao
- (a) **Answer: 133 cm^2**
- (b) **M1** $2 \times (19 + 7)$ oe
- (b) **A1** 52 cm cao
- (b) **Answer: 52 cm**

Question 12

- **M1** correct method/setup, e.g. $9 \times 4 \times 6$
- **M1** $9 \times 4 (= 36)$, then 36×6 (or equivalent order of multiplying)
- **A1** 216 cm^3 cao
- **Answer: 216 cm^3**

Question 13

- **M1** $3175 / 1000$ oe
- **A1** 3.175 kg cao
- **Answer: 3.175 kg**

Question 14

- **M1** correct method to find elapsed time, e.g. $09:52$ to $10:00 = 8$ minutes
- **M1** adds the remaining time from $10:00$ to $12:18$ (2 hours 18 minutes)
- **A1** 2 hours 26 minutes cao
- **Answer: 2 hours 26 minutes**

Question 15

- **M1** finds a correct unit price for at least one bag, e.g. $1.80 / 4 = 0.45$ pounds per 100 g, or $3.87 / 9 = 0.43$ pounds per 100 g
- **A1** correct conclusion with supporting unit prices: the 900 g bag is better value (0.43 pounds per 100 g compared with 0.45 pounds per 100 g)
- **Answer: The 900 g bag is better value for money**

Question 16

- **M1** total of the five numbers = 205
- **M1** $205 / 5$
- **A1** 41 cao
- **Answer: 41**

Question 17

- **M1** total number of counters = 20
- **A1** $1/4$ oe cao
- **Answer: $1/4$**

Question 18

- **M1** correct method, e.g. continuing the pattern +6 each time to the 15th term, or using n th term = $6n - 1$
- **A1** 89 cao
- **Answer: 89**

Question 19

- **M1** $((4+16)/2, (11+3)/2)$ oe
- **A1** (10, 7) cao
- **Answer: (10, 7)**

Question 20

- **M1** 15% of 620 pounds = 93 pounds (or 620×0.15)
- **M1** $620 - 93$ (= 527 pounds), the sale price
- **A1** 507 pounds cao
- **Answer: 507 pounds**

Question 21

- (a) **B1** 4.5 km/h cao
- **(a) Answer: 4.5 km/h**
- (b) **M1** $50/60$ (= $5/6$) hours, or equivalent method using their (a)
- (b) **A1** 3.75 km cao
- **(b) Answer: 3.75 km**

Question 22

- (a) **M1** profit = $11.60 - 8.00$ (= 3.60 pounds)
- (a) **A1** 45% cao
- **(a) Answer: 45%**
- (b) **M1** 20% of 11.60 pounds = 2.32 pounds, or equivalent method (e.g. 11.60×0.2)
- (b) **A1** 9.28 pounds cao
- **(b) Answer: 9.28 pounds**

Question 23

- (a) **B1** $4f + 9 = 65$ oe
- **(a) Answer: $4f + 9 = 65$**
- (b) **M1** $4f = 56$ (subtracts 9 from both sides)
- (b) **A1** $f = 14$ cao
- **(b) Answer: $f = 14$**
- (c) **B1** 23, follow through 2 x their $f - 5$
- **(c) Answer: 23**

Question 24

- (a) **M1** 15×9 (= 135 m^2), the area of the full rectangle
- (a) **M1** 4×3 (= 12 m^2), the area removed
- (a) **A1** 123 m^2 cao
- **(a) Answer: 123 m^2**
- (b) **B1** 760 pounds, follow through their (a) $\times 6.20$, rounded to the nearest 10 pounds
- **(b) Answer: 760 pounds**

Question 25

- **M1** total marks for the class of 24 = 24×58 (= 1392)
- **M1** total marks for the class of 26 = 26×71 (= 1846)
- **M1** $(1392 + 1846) / 50$, combining both totals and dividing by 50 pupils
- **A1** 64.8% (1 dp) cao
- **Answer: 64.8% (1 dp)**