Half paper C16

Paper 3 style · Calculator · Foundation

36 marks
about 35–40 minutes

Name	Date	Score / 36

Answer ALL questions. Write your answers in the spaces provided. You must write down all the stages in your working. You may use a calculator. Diagrams are **NOT** accurately drawn unless it says so.

Help on the longer questions

Underlined words tell you what the question wants.

Remember reminds you of a fact you need.

1 **Write** 8% as a decimal.

.....

(1)

(Total for Question 1 is 1 mark)

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2 **Write down** two factors of 26

.....

(1)

(Total for Question 2 is 1 mark)

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3 **Work out** $\frac{1}{9}$ of 108

.....

(1)

(Total for Question 3 is 1 mark)

Turn over ►

4 On Monday, Lucy pays for 3 concert tickets, 2 nights in a hotel and 3 meals.

	dollars
each concert ticket	450
each night in a hotel	95
each meal	30

Show that Lucy pays more than 1500 dollars on Monday.

> **Remember** Write down each cost or amount as you work it out, then add them up. Write money with 2 decimal places (£4.50). 100p = £1.

(3)

(Total for Question 4 is 3 marks)

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5 Zara has 60 bags.
The bags are only red, only blue or only black.

34 of the bags are leather.
6 of the 15 blue bags are leather.
7 of the 18 red bags are **not** leather.

Use this information to complete the two-way table.

	Red	Blue	Black	Total
Leather				
Not leather				
Total				

> **Remember** Rows and columns add up to the totals. Fill in the easy gaps first, then use them to find the rest.

(3)

(Total for Question 5 is 3 marks)

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6 Dev has £250 to spend on games.
Each game costs £6.95
Work out the greatest number of games Dev can buy.

> **Remember** Line up the digits. To divide by a decimal, multiply both numbers by 10 (or 100) first. Check with an estimate.

.....

(3)

(Total for Question 6 is 3 marks)

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7 ✎ **Complete this question on paper (printed at actual size)**

The diagram shows two places on a map.



Scale: 1 centimetre represents 25 kilometres

> **Remember** Real distance = map distance × scale. 100 cm = 1 m, 1000 m = 1 km (100 000 cm = 1 km).

(a) What is the actual distance, in kilometres, from Ashford to Benton?

..... kilometres

(2)

(b) On a scale drawing, the scale is given as 1 : 1500
How many metres does 6 centimetres represent on this drawing?

..... metres

(2)

(Total for Question 7 is 4 marks)

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8 On an island, the ratio of the area of forest to the area of farmland is 3 : 7

> **Remember** Add the ratio parts to find the total number of parts. One part = amount ÷ total parts. Then multiply.

(a) **Work out** what percentage of the area of the island is forest.

..... %

(2)

(b) 25% of the area of another island is forest.
Work out the ratio of the area of forest to the area of farmland on this island.

.....

(2)

(Total for Question 8 is 4 marks)

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9 A bridge cost £480 million.
$\frac{7}{12}$ of this cost was for the steel.
The rest of the cost was for the labour.
Work out the cost of the labour.

> **Remember** Fraction of an amount: ÷ by the bottom, × by the top. Percentage: 10% = ÷ 10, 1% = ÷ 100, or use a multiplier (35% = 0.35).

£ ..... million

(3)

(Total for Question 9 is 3 marks)

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10 Ellie measures all the angles around a point.
Her results are 52°, 136°, 52° and 110°
Explain why these results cannot be true.

(1)

(Total for Question 10 is 1 mark)

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11 **Change** 3 m^2 into cm^2

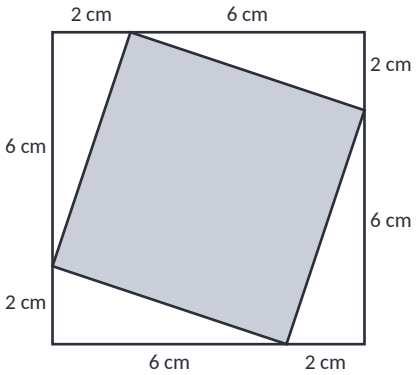
..... cm^2

(1)

(Total for Question 11 is 1 mark)

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12 This diagram shows two squares.



Work out the area of the square shown shaded in the diagram.

> **Remember** Perimeter: add all the sides. Rectangle area = length × width. Triangle area = ½ × base × height.

..... cm^2

(4)

(Total for Question 12 is 4 marks)

13 Sam makes pastry in a bakery.
He mixes flour, butter and sugar so that

weight of flour : weight of butter : weight of sugar = 6 : 3 : 1

Sam needs to make 2000 g of pastry.
Butter costs £1.80 for 250 g.
Work out the cost of the butter needed to make 2000 g of pastry.

> **Remember** Add the ratio parts to find the total number of parts. One part = amount ÷ total parts. Then multiply.

£ .....

(4)

(Total for Question 13 is 4 marks)

14 The first four terms of a Fibonacci sequence are

$$a \quad 2a \quad 3a \quad 5a$$

The sum of the first five terms of this sequence is 266

Work out the value of a.

> **Remember** Find the difference between terms. nth term = difference × n + (first term − difference).

.....

(3)

(Total for Question 14 is 3 marks)

TOTAL FOR PAPER IS 36 MARKS

C16 mark scheme

Q		Answer	Mark	Notes
1		0.08	B1	
2		Any two of 1, 2, 13, 26	B1	
3		12	B1	
4		1350 + 190 + 90 = 1630, which is more than 1500	M1 M1 C1	M1 for 3 × 450 or 2 × 95 or 3 × 30 M1 for adding all three C1 for 1630 with conclusion
5		Leather: 11, 6, 17, 34 Not leather: 7, 9, 10, 26 Total: 18, 15, 27, 60	B3	B3 all correct (B2 for 6 or more correct, B1 for 4 or more correct)
6		35	M1 M1 A1	M1 for 250 ÷ 6.95 (= 35.97…) M1 for rounding down A1 cao
7	(a)	100 (accept 95 to 105)	M1 A1	M1 for measuring 4 cm (±0.2) A1 for 95 to 105
	(b)	90	M1 A1	M1 for 6 × 1500 (= 9000 cm) A1 cao
8	(a)	30	M1 A1	M1 for 3 ÷ 10 A1 cao
	(b)	1 : 3	M1 A1	M1 for 25 : 75 A1 cao
9		200	M1 M1 A1	M1 for 480 ÷ 12 (= 40) M1 for 5 × 40 or 480 − 280 A1 cao
10		They add up to 350°, but angles around a point add up to 360°	C1	C1
11		30 000	B1	

Mark scheme continues ►

Q	Answer	Mark	Notes
12	40	M1 M1 M1 A1	M1 for 8 × 8 (= 64) M1 for ½ × 2 × 6 (= 6) M1 for 64 − 4 × 6 A1 for 40 cm²
13	4.32	M1 M1 M1 A1	M1 for 2000 ÷ 10 (= 200) M1 for 3 × 200 (= 600) M1 for 600 ÷ 250 × 1.80 A1 cao
14	14	M1 M1 A1	M1 for 8*a* as the 5th term M1 for 19*a* = 266 A1 cao

B1 = mark for a correct answer · **M1** = method mark · **A1** = accurate answer after M1 · **C1** = reason · **cao** = correct answer only

Score ____ / 36