Half paper C2

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 The table shows the heights of five towers.

Tower	Height (m)
A	318
B	96
C	291
D	302
E	98

(a) **Write down** the towers in order of height.
Start with the shortest tower.

(1)

(b) Ben says,

"Tower A is more than three times as tall as Tower E."

Show that Ben is correct.

(1)

(Total for Question 1 is 2 marks)

Turn over ►

2 Pencils are sold in packs and in tubs.
There are 8 pencils in each pack.
There are 30 pencils in each tub.
Ravi buys p packs of pencils and t tubs of pencils.
Write down an expression, **in terms of p and t**, for the total number of pencils Ravi buys.

.....

(2)

(Total for Question 2 is 2 marks)

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3 Here are four digits.

4 1 8 6

(a) **Write down** the smallest possible two digit number that can be made with two of the digits.

.....

(1)

(b) **Write down** the three digit number closest to 700 that can be made with three of the digits.

.....

(1)

(Total for Question 3 is 2 marks)

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4 $\frac{5}{6}$ of a number is 45
Find the number.

.....

(2)

(Total for Question 4 is 2 marks)

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5 Mark wants to buy a sofa.
The sofa costs £948
Mark will pay a deposit of £108
He will then pay the rest of the cost in 6 equal monthly payments.
How much is each monthly payment?

£ .....

(2)

(Total for Question 5 is 2 marks)

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6 *ABC* is a straight line.



The length *AB* is four times the length *BC*.
AC = 75 cm.
Work out the length *AB*.

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

..... cm

(3)

(Total for Question 6 is 3 marks)

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7 $T = 5v - 2$

> **Remember** Do the same to both sides to get the letter on its own. Undo in reverse order.

(a) **Work out** the value of *T* when *v* = 3

T = ...

(2)

(b) **Make *v* the subject** of the formula $T = 5v - 2$

.....

(2)

(Total for Question 7 is 4 marks)

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8 The size of the largest angle in a triangle is 3 times the size of the smallest angle.
The other angle is 30° more than the smallest angle.
Work out, in degrees, the size of each angle in the triangle.
You must show your working.

> **Remember** Straight line = 180°. Around a point = 360°. Triangle = 180°. Quadrilateral = 360°. Isosceles: two equal base angles. Write the reason for each angle.

(5)

(Total for Question 8 is 5 marks)

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9 **Solve** the simultaneous equations

$$2x + y = 7$$

$$4x - 3y = -1$$

> **Remember** Make one letter have the same number in both equations, then add or subtract to remove it. Substitute back to find the other.

x = ...

y = ...

(3)

(Total for Question 9 is 3 marks)

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10 The table shows some information about the shoe sizes of 30 men.

Shoe size	Number of men
7	4
8	10
9	9
10	7

(a) **Find** the median shoe size.

.....

(1)

(b) 5 of the 30 men wear glasses.
Leo says that if you choose at random one of the 30 men, the probability that he wears glasses or has a shoe size of 10 is $\frac{12}{30}$ because

$$\frac{5}{30} + \frac{7}{30} = \frac{12}{30}$$

Is Leo correct?
You must give a reason for your answer.

(1)

(Total for Question 10 is 2 marks)

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11 Ella bakes 360 cakes.
She bakes only vanilla cakes, banana cakes, lemon cakes and chocolate cakes.
$\frac{1}{4}$ of the cakes are vanilla cakes.
40% of the cakes are banana cakes.
The ratio of the number of lemon cakes to the number of chocolate cakes is 2 : 5
Work out the number of lemon cakes Ella bakes.

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

.....

(5)

(Total for Question 11 is 5 marks)

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12 Ali's flat has a value of £240 000 **correct to 2 significant figures**.

> **Remember** Halve the rounding unit. Lower bound uses ⩽, upper bound uses <.

(a) **Write down** the least possible value of the flat.

£ .....

(1)

(b) **Write down** the greatest possible value of the flat.

£ .....

(1)

(c) The value of Mia's flat increased by 4%.
Her flat then had a value of £260 000
Work out the value of Mia's flat before the increase.

£ .....

(2)

(Total for Question 12 is 4 marks)

TOTAL FOR PAPER IS 36 MARKS

C2 mark scheme

Q		Answer	Mark	Notes
1	(a)	B, E, C, D, A	B1	
	(b)	3 × 98 = 294, and 318 > 294	C1	C1
2		$8p + 30t$	B2	B2 (B1 for $8p$ or $30t$)
3	(a)	14	B1	
	(b)	684	B1	
4		54	M1 A1	M1 for 45 ÷ 5 × 6 A1 cao
5		140	M1 A1	M1 for (948 − 108) ÷ 6 A1 cao
6		60	M1 M1 A1	M1 for 4 + 1 = 5 parts M1 for 75 ÷ 5 × 4 A1 cao
7	(a)	13	M1 A1	M1 for 5 × 3 − 2 A1 cao
	(b)	$v = \frac{T + 2}{5}$	M1 A1	M1 for $T + 2 = 5v$ A1 oe
8		30°, 60°, 90°	M1 M1 M1 A1 A1	M1 for x, $3x$ and $x + 30$ M1 for $x + 3x + x + 30 = 180$ M1 for $5x = 150$ A1 for $x = 30$ A1 for 30, 60, 90
9		$x = 2$, $y = 3$	M1 A1 A1	M1 for a correct method to eliminate one variable A1 for $x = 2$ A1 for $y = 3$
10	(a)	9	B1	
	(b)	No (not necessarily): some men who wear glasses may also have a shoe size of 10, so they would be counted twice	C1	C1

Mark scheme continues ►

Q		Answer	Mark	Notes
11		36	M1 M1 M1 M1 A1	M1 for $\frac{1}{4} \times 360$ (= 90) M1 for 0.4×360 (= 144) M1 for $360 - 90 - 144$ (= 126) M1 for $126 \div 7 \times 2$ A1 cao
12	(a)	235 000	B1	
	(b)	245 000	B1	
	(c)	250 000	M1 A1	M1 for $260\,000 \div 1.04$ A1 cao

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

Score ____ / 36