Half paper C7

Paper 2 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 down** the value of the 6 in the number 8.461

.....

(1)

(Total for Question 1 is 1 mark)

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2 **Write down** a cube number that is also an odd number.

.....

(1)

(Total for Question 2 is 1 mark)

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3 **(a)** **Change** 925 g into kg.

..... kg

(1)

(b) **Change** 0.8 m into mm.

..... mm

(1)

(Total for Question 3 is 2 marks)

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4 **Write** 0.09 as a fraction.

.....

(1)

(Total for Question 4 is 1 mark)

5

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

(a) The nth term of a sequence is $4n + 3$

Explain why 30 is not a term of this sequence.

(2)

(b) Here are the first three terms of a different sequence.

3 6 12

Write down two numbers that could be the 4th term and the 5th term of this sequence.
Give the rule you have used to get your numbers.

(2)

(Total for Question 5 is 4 marks)

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6 There are 55 counters in a bag.
23 of the counters are green.
The rest of the counters are yellow.
One of the counters is taken at random.
Find the probability that the counter is yellow.

.....

(2)

(Total for Question 6 is 2 marks)

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7 A square has an area of 36 cm²

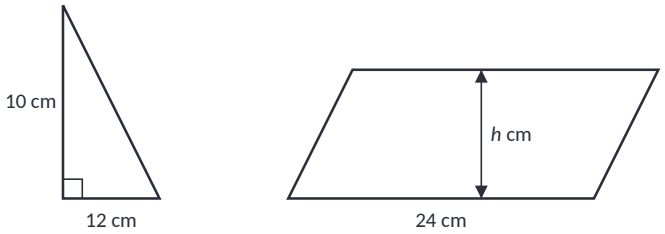
> **Remember** Square: area = side × side, perimeter = 4 × side. Find the side first.

(a) **Find** the perimeter of the square.

..... cm

(2)

(b) The diagram shows a right-angled triangle and a parallelogram.



The area of the parallelogram is 4 times the area of the triangle.
The perpendicular height of the parallelogram is h cm.
Find the value of h.

h = ...

(3)

(Total for Question 7 is 5 marks)

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8 Ravi throws an ordinary fair 6-sided dice once.
He says,

"The probability of getting an even number is twice the probability of getting a 5"

(a) Is Ravi correct?
You must explain your answer.

(1)

(b) Ella throws the dice once.
She also spins a spinner that lands on Red, Blue or Green.
List all the possible outcomes she can get.

(2)

(Total for Question 8 is 3 marks)

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9 Kim invests £800 for 5 years in a savings account.
By the end of the 5 years she has received a total of £60 simple interest.
Work out the annual rate of simple interest.

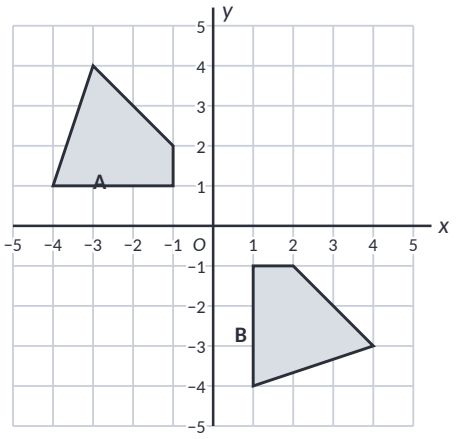
> **Remember** Simple interest is the same every year: interest for one year × number of years.

.....%

(3)

(Total for Question 9 is 3 marks)

10



Describe fully the single transformation that maps shape **A** onto shape **B**.

(2)

(Total for Question 10 is 2 marks)

11 Jack is going to make mortar.
He is going to use

300 kg of sand
420 kg of cement

Sand and cement are sold in bags.

1 bag sand	1 bag cement
25 kg	20 kg

Jack already has

10 bags of sand
12 bags of cement

Work out what bags he needs to buy to make the mortar.

> **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 11 is 3 marks)

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12 Ben wants to increase 240 by 4%
He writes down

$$240 \times 1.4 = 336$$

Ben's method is wrong.

(a) **Explain why**.

(1)

(b) Amy wants to decrease 240 by 4%
Complete this statement to show how Amy can decrease 240 by 4%

$$240 \times \ldots\ldots\ldots\ldots = \ldots\ldots\ldots\ldots$$

(1)

(Total for Question 12 is 2 marks)

13

> **Remember** Expand: multiply every term inside the bracket. Factorise: take out the highest common factor. Quadratics: two numbers that multiply to the last term and add to the middle.

(a) **Solve** $4(x - 3) = 18$

$x =$ .....

(2)

(b) **Factorise fully** $10c - 5c^2$

.....

(2)

(Total for Question 13 is 4 marks)

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14 A is the point with coordinates (3, 7)
B is the point with coordinates (d, 19)
The gradient of the line AB is 4
Work out the value of d.

> **Remember** y = mx + c: m is the gradient (up ÷ across), c is where the line crosses the y-axis.

$d =$ .....

(3)

(Total for Question 14 is 3 marks)

TOTAL FOR PAPER IS 36 MARKS

C7 mark scheme

Q		Answer	Mark	Notes
1		$\frac{6}{100}$ or 0.06 or 6 hundredths	B1	
2		e.g. 1, 27 or 125	B1	
3	(a)	0.925	B1	
	(b)	800	B1	
4		$\frac{9}{100}$	B1	
5	(a)	All the terms are odd ($4n$ is even, + 3 makes it odd), but 30 is even	M1 C1	M1 for listing terms 7, 11, 15, … or $4n + 3 = 30$ gives $n = 6.75$ C1 for a correct explanation
	(b)	e.g. 24, 48: multiply by 2	B1 B1	B1 for two terms B1 for a matching rule
6		$\frac{32}{55}$	M1 A1	M1 for 55 − 23 (= 32) A1 oe
7	(a)	24	M1 A1	M1 for √36 (= 6) A1 cao
	(b)	10	M1 M1 A1	M1 for ½ × 12 × 10 (= 60) M1 for 4 × 60 ÷ 24 A1 cao
8	(a)	No: P(even) = $\frac{3}{6}$, which is 3 times P(5) = $\frac{1}{6}$	C1	C1
	(b)	1R, 1B, 1G, 2R, 2B, 2G, … 6R, 6B, 6G (18 outcomes)	B2	B2 all 18 (B1 for at least 9 correct)
9		1.5	M1 M1 A1	M1 for 60 ÷ 5 (= 12) M1 for 12 ÷ 800 × 100 A1 cao
10		Reflection in the line $y = x$	B1 B1	B1 reflection B1 $y = x$

Mark scheme continues ►

Q		Answer	Mark	Notes
11		2 bags of sand and 9 bags of cement	M1 M1 A1	M1 for 300 − 10 × 25 (= 50 kg, so 2 bags) M1 for 420 − 12 × 20 (= 180 kg, so 9 bags) A1 for 2 bags of sand and 9 bags of cement
12	(a)	The multiplier for a 4% increase is 1.04, not 1.4 (1.4 is a 40% increase)	C1	C1
	(b)	240 × 0.96 = 230.4	B1	
13	(a)	7.5	M1 A1	M1 for $4x - 12 = 18$ or $x - 3 = 4.5$ A1 oe
	(b)	$5c(2 - c)$	B2	B2 (B1 for a partial factorisation)
14		6	M1 M1 A1	M1 for 19 − 7 (= 12) M1 for 12 ÷ 4 (= 3) A1 cao

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

Score ____ / 36

Write your score on the front page