Half paper N2

Paper 1 style · Non-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 must **not** 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 **(a)** **Change** 2140 cm into metres.

..... m

(1)

(b) **Change** 0.45 kg into grams.

..... g

(1)

(Total for Question 1 is 2 marks)

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2 **Work out** $20 - 12 \div 4$

.....

(1)

(Total for Question 2 is 1 mark)

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3 **Solve** $\frac{m}{6} = 3.5$

$m =$ .....

(1)

(Total for Question 3 is 1 mark)

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4 Here are four numbers.

$-7 \quad -1 \quad 3 \quad 6$

Write one of these numbers in each box to make a correct calculation.

$\square + \square = -4$

(1)

(Total for Question 4 is 1 mark)

Turn over ►

5 Here are the first four terms of a number sequence.

1 4 13 40

The rule to continue this sequence is

multiply the previous term by 3 and then add 1

Work out the 5th term of this sequence.

.....

(1)

(Total for Question 5 is 1 mark)

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6 There are 45 children at a holiday club.
At least 1 adult is needed for every 6 children at the club.

> **Remember** Find the value for 1 first (÷), then multiply. Inverse proportion: more workers → less time (× then ÷).

(a) **Work out** the least number of adults needed at the club.

.....

(2)

(b) 3 more children join the club.
Does this mean that more adults are needed at the club?
You must give a reason for your answer.

(1)

(Total for Question 6 is 3 marks)

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7 Ella has 40 cats.
22 of the cats are female.
9 of the female cats have short hair.
11 of the cats with long hair are male.

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

(a) Use the information to complete the two-way table.

	Male	Female	Total
Long hair			
Short hair			
Total			

(3)

(b) One of Ella's cats is chosen at random.
Write down the probability that this cat is a male with short hair.

.....

(1)

(Total for Question 7 is 4 marks)

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8 Here are two fractions.

$$\frac{9}{7} \qquad \frac{7}{9}$$

Work out which of the fractions is closer to 1
You must show all your working.

> **Remember** Add/subtract: make the denominators the same. Multiply: top × top, bottom × bottom. Divide: flip the second fraction and multiply. Change mixed numbers to top-heavy first.

(3)

(Total for Question 8 is 3 marks)

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9 There are only red beads, yellow beads and orange beads in a bag.
The number of red beads, the number of yellow beads and the number of orange beads are in the ratio 3 : 5 : 12
Work out what percentage of the beads in the bag are orange.

..... %

(2)

(Total for Question 9 is 2 marks)

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10 Kim wants to buy 45 hoodies.
Each hoodie costs £11.70
Kim does the calculation 50 × 12 = 600 to estimate the cost of 45 hoodies.

> **Remember** Round every number to 1 significant figure first, then work it out. Say if you rounded up or down.

(a) **Explain** how Kim's calculation shows the actual cost will be less than £600

(1)

(b) There is a special offer.

Hoodies £11.70 each Buy 40 or more hoodies. Get 20% off the total cost.

Work out the actual cost of buying 45 hoodies using the special offer.

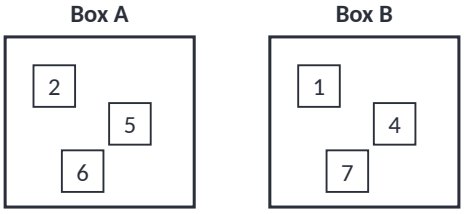
£ .....

(4)

(Total for Question 10 is 5 marks)

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11 There are 3 cards in Box **A** and 3 cards in Box **B**.
There is a number on each card.



Sara takes at random a card from Box **A** and a card from Box **B**.
She adds together the numbers on the two cards to get a total score.
Work out the probability that the total score is an odd number.

.....

(2)

(Total for Question 11 is 2 marks)

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12 Ali, Bea and Cal share £560 in the ratio 3 : 4 : 7
How much money does Cal get?

£ .....

(2)

(Total for Question 12 is 2 marks)

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13 Here is a list of ingredients for making 12 biscuits.

Ingredients for 12 biscuits
150 g flour
90 g butter
60 g sugar
3 tablespoons milk

Tom wants to make 20 biscuits.

Work out how much of each of the ingredients he needs.

> **Remember** Find the value for 1 first (÷), then multiply. Inverse proportion: more workers → less time (× then ÷).

flour ..... g

butter ..... g

sugar ..... g

milk ..... tablespoons

(3)

(Total for Question 13 is 3 marks)

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14 **Work out** $\frac{0.08 \times 0.0006}{0.02}$

Give your answer in standard form.

> **Remember** $A \times 10^n$ where A is between 1 and 10. Big numbers: positive power. Small numbers: negative power.

.....

(3)

(Total for Question 14 is 3 marks)

15

> **Remember** Add/subtract: make the denominators the same. Multiply: top × top, bottom × bottom. Divide: flip the second fraction and multiply. Change mixed numbers to top-heavy first.

(a) **Work out** $\frac{1}{3} + \frac{2}{7}$

.....

(2)

(b) **Write down** the value of 3^{-2}

.....

(1)

(Total for Question 15 is 3 marks)

TOTAL FOR PAPER IS 36 MARKS

N2 mark scheme

Q		Answer	Mark	Notes
1	(a)	21.4	B1	
	(b)	450	B1	
2		17	B1	
3		21	B1	
4		$-7 + 3 = -4$	B1	
5		121	B1	
6	(a)	8	M1 A1	M1 for $45 \div 6$ (= 7.5) A1 cao
	(b)	No: $48 \div 6 = 8$, so 8 adults are still enough	C1	C1
7	(a)	Long hair: 11, 13, 24 Short hair: 7, 9, 16 Total: 18, 22, 40	B3	B3 all correct (B2 for 6 or 7 correct, B1 for 4 or 5 correct)
	(b)	$\frac{7}{40}$	B1	B1 ft
8		$\frac{7}{9}$ ($\frac{2}{9} = \frac{14}{63}$ from 1, compared with $\frac{2}{7} = \frac{18}{63}$)	M1 M1 C1	M1 for $\frac{9}{7} - 1 = \frac{2}{7}$ or $1 - \frac{7}{9} = \frac{2}{9}$ M1 for a common denominator (63) or decimals C1 $\frac{7}{9}$ with correct working
9		60	M1 A1	M1 for $\frac{12}{20}$ A1 cao

Mark scheme continues ►

Q		Answer	Mark	Notes
10	(a)	She rounded both numbers up (45 to 50 and 11.70 to 12)	C1	C1
	(b)	421.20	M1 M1 M1 A1	M1 for 45 × 11.70 (= 526.50) M1 for 20% of 526.50 (= 105.30) M1 for 526.50 − 105.30 or 526.50 × 0.8 A1 cao
11		$\frac{5}{9}$	M1 A1	M1 for listing all 9 totals or a sample space A1 oe
12		280	M1 A1	M1 for 560 ÷ 14 (= 40) A1 cao
13		flour 250 g, butter 150 g, sugar 100 g, milk 5 tablespoons	M1 A2	M1 for 20 ÷ 12 or a correct method for one ingredient A2 all correct (A1 for two correct)
14		2.4×10^{-3}	M1 M1 A1	M1 for 0.000 048 M1 for ÷ 0.02 (= 0.0024) A1 cao
15	(a)	$\frac{13}{21}$	M1 A1	M1 for a common denominator of 21 A1 cao
	(b)	$\frac{1}{9}$	B1	

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