# Half paper C9

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** 0.125 as a fraction.

.....

**(1)**

**(Total for Question 1 is 1 mark)**

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**2** **Change** 465 grams to kilograms.

..... kg

**(1)**

**(Total for Question 2 is 1 mark)**

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**3** $P = 5r + 3q$

**Work out** the value of $P$ when $r = 4$ and $q = -2$

$P =$ .....

**(2)**

**(Total for Question 3 is 2 marks)**

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**Turn over ►**

**4** Here is part of a train timetable.

| | | | |
|---|---|---|---|
| **Leeds** | 08 14 | 08 26 | 08 41 |
| **York** | 08 39 | 09 07 | 09 03 |

Ben gets to the station in Leeds at 07 58

> **Remember** 60 minutes = 1 hour. Count on in steps to the next hour. Read across the row for one bus or train.

**(a)** **Work out** how many minutes he has to wait until 08 14

..... minutes

**(1)**

**(b)** **Work out** how long it will take the 08 26 train to get to York.

.....

**(2)**

**(Total for Question 4 is 3 marks)**

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**5** **Write** the ratio 7.5 : 2.5 in the form $n$ : 1

.....

**(1)**

**(Total for Question 5 is 1 mark)**

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**6** A field is in the shape of a rectangle 80 m by 50 m.
Wheat is grown in 65% of the field.
The rest of the field is grass.
**Work out** the area of the field that is grass.

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

..... $m^2$

**(4)**

**(Total for Question 6 is 4 marks)**

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**7** Four biased coins, A, B, C and D are thrown.
The probability that each coin will land on Heads is shown in the table.

| Coin | Probability |
|---|---|
| A | 0.3 |
| B | 0.032 |
| C | $\frac{1}{3}$ |
| D | 32% |

**Remember** Estimated number = probability × number of trials. The probabilities add up to 1.

**(a)** Which coin is least likely to land on Heads?

.....

**(1)**

**(b)** Which coin is most likely to land on Heads?

.....

**(1)**

**(c)** Coin B is going to be thrown 5000 times.
**Work out** an estimate for the number of times coin B will land on Heads.

.....

**(2)**

**(Total for Question 7 is 4 marks)**

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**8** There are 72 calories in 100 g of apple.
There are 96 calories in 100 g of yogurt.
Ella has 60 g of apple and 200 g of yogurt for breakfast.
**Work out** the total number of calories in this breakfast.

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

.....

**(4)**

**(Total for Question 8 is 4 marks)**

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**9** Machine A and machine B both make bolts.
Machine A makes 5 bolts every 12 minutes.
Machine B makes 7 bolts every 15 minutes.
On Monday
machine A makes bolts for 8 hours
machine B makes bolts for 6 hours
**Work out** the total number of bolts made by the two machines on Monday.

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

.....

**(4)**

**(Total for Question 9 is 4 marks)**

**10**

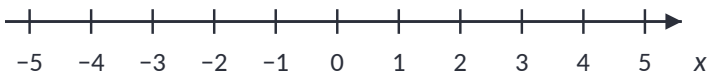
> **Remember** Solve like an equation. On a number line: ● means "included" (⩽ or ⩾), ○ means "not included" (< or >).

**(a)** **Solve** $9n > 5n + 14$

.....

**(2)**

**(b)** On the number line below, show the set of values of $x$ for which $-1 < x + 2 \leqslant 5$




**(3)**

**(Total for Question 10 is 5 marks)**

**11** A container is in the shape of a cuboid 40 cm by 20 cm by 15 cm.

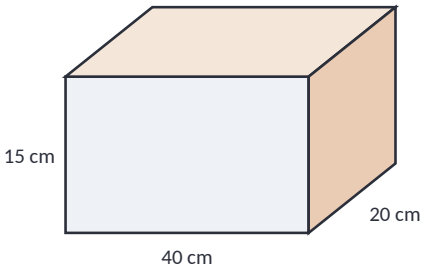



Diagram NOT accurately drawn

The container is $\frac{3}{4}$ full of water.

A bottle holds 250 ml of water.

What is the greatest number of bottles that can be completely filled with water from the container?

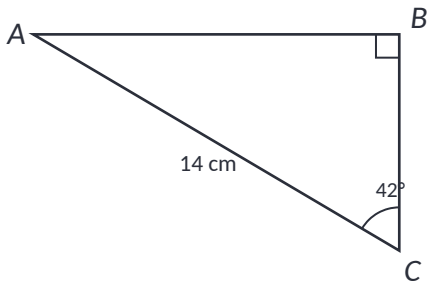
**Remember** Volume of a cuboid = length × width × height. Make all the units the same first (1 m = 100 cm).

.....

**(4)**

**(Total for Question 11 is 4 marks)**

**12** *ABC* is a right-angled triangle.




*AC* = 14 cm and angle *ACB* = 42°

**Calculate** the length of *AB*.

Give your answer **correct to 2 decimal places**.

..... cm

**(2)**

**(Total for Question 12 is 2 marks)**

**13** **Write** 0.007 48 **in standard form**.

.....

**(1)**

**(Total for Question 13 is 1 mark)**

**TOTAL FOR PAPER IS 36 MARKS**

# C9 mark scheme

| Q | | Answer | Mark | Notes |
|---|---|---|---|---|
| 1 | | $\frac{125}{1000}$ or $\frac{1}{8}$ | B1 | |
| 2 | | 0.465 | B1 | |
| 3 | | 14 | M1<br>A1 | M1 for $5 \times 4 + 3 \times -2$<br>A1 cao |
| 4 | (a) | 16 | B1 | |
| | (b) | 41 minutes | M1<br>A1 | M1 for 08 26 to 09 07<br>A1 cao |
| 5 | | 3 : 1 | B1 | |
| 6 | | 1400 | M1<br>M1<br>M1<br>A1 | M1 for $80 \times 50$ (= 4000)<br>M1 for $100 - 65$ (= 35%)<br>M1 for $0.35 \times 4000$<br>A1 cao |
| 7 | (a) | B | B1 | |
| | (b) | C | B1 | |
| | (c) | 160 | M1<br>A1 | M1 for $0.032 \times 5000$<br>A1 cao |
| 8 | | 235.2 | M1<br>M1<br>M1<br>A1 | M1 for $72 \div 100 \times 60$ (= 43.2)<br>M1 for $96 \times 2$ (= 192)<br>M1 for adding<br>A1 cao |
| 9 | | 368 | M1<br>M1<br>M1<br>A1 | M1 for $8 \times 60 \div 12$ (= 40) or $6 \times 60 \div 15$ (= 24)<br>M1 for $40 \times 5$ (= 200) or $24 \times 7$ (= 168)<br>M1 for adding<br>A1 cao |
| 10 | (a) | $n > 3.5$ | M1<br>A1 | M1 for $4n > 14$<br>A1 oe |
| | (b) | Open circle at −3, filled circle at 3, joined | M1<br>B2 | M1 for $-3 < x \leqslant 3$<br>B2 for a correct diagram (B1 for one end correct) |



Mark scheme continues ►

| Q | Answer | Mark | Notes |
|---|---|---|---|
| 11 | 36 | M1<br>M1<br>M1<br>A1 | M1 for 40 × 20 × 15 (= 12 000)<br>M1 for × $\frac{3}{4}$ (= 9000)<br>M1 for 9000 ÷ 250<br>A1 cao |
| 12 | 9.37 | M1<br>A1 | M1 for 14 × sin 42<br>A1 for 9.36 to 9.37 |
| 13 | $7.48 \times 10^{-3}$ | B1 | |

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

**Score ____ / 36**