Cambridge International Examinations
Cambridge Secondary 1 Checkpoint

CANDIDATE
NAME

CENTRE
NUMBER

CANDIDATE
NUMBER

MATHEMATICS **1112/01**

Paper 1 **April 2016**

1 hour

Candidates answer on the Question Paper.

Additional Materials: Geometrical instruments
Tracing paper (optional)

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, glue or correction fluid.

DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.
NO CALCULATOR ALLOWED.

You should show all your working in the booklet.
The number of marks is given in brackets [ ] at the end of each question or part question.
The total number of marks for this paper is 50.

This document consists of **20** printed pages.

CAMBRIDGE
International Examinations

[Turn over

1   Fatima has a phone.

   (a) The time on the phone is 17:23

   Write this time using the 12-hour clock.

   .... [1]

   (b) Fatima starts a phone call at 18:32
   The phone call finishes at 19:16

   Work out the length of the phone call.

   .... minutes [1]

2   Work out

   (a) 11.28 – 2.843

   .... [1]

   (b) 16.8 × 7

   .... [1]

3 Draw a line to match each fraction to its equivalent percentage.

The first one has been done for you.

$\frac{1}{5}$ 14%

$\frac{3}{20}$ 15%

$\frac{7}{50}$ 16%

$\frac{4}{25}$ 20%

[1]

4 (a) Put a ring around the number that is divisible by 4
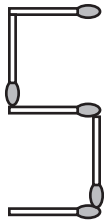
182   218   281   812

[1]

(b) Tick ($\checkmark$) to show whether each of these statements is true or false.

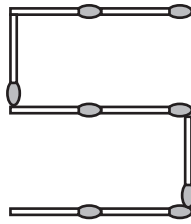|	True	False
$15^2 = 225$	☐	☐
$\sqrt{144} = 72$	☐	☐
$4^2 = \sqrt{64}$	☐	☐

[1]

5 Natasha is making a pattern using matchsticks.

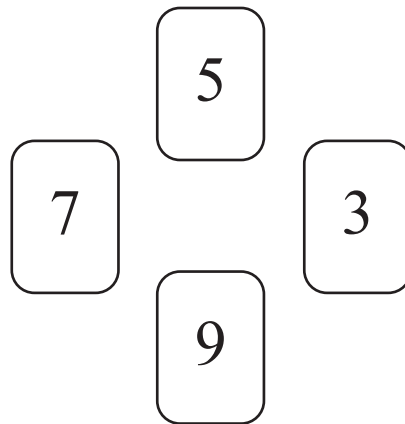The first three patterns are shown.
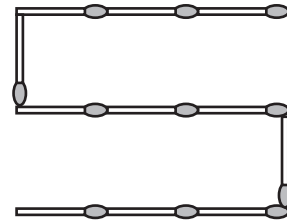
Pattern 1   Pattern 2   Pattern 3

Complete the table.

Pattern number	1	2	3	4	8
Number of matchsticks	5	8	11		

[2]

6 Here are four number cards.

5

7   3

9

The four cards are arranged to make a 4-digit whole number.

Explain why this number **must** be divisible by 3

....

.... [1]

7 **(a)** Work out

$$8 \times \frac{1}{3}$$

Give your answer as a mixed number.

.... [1]

(b) Work out

$$6 \div \frac{2}{3}$$

Give your answer in its simplest form.

.... [1]

8 The diagram shows triangle *ABC*.
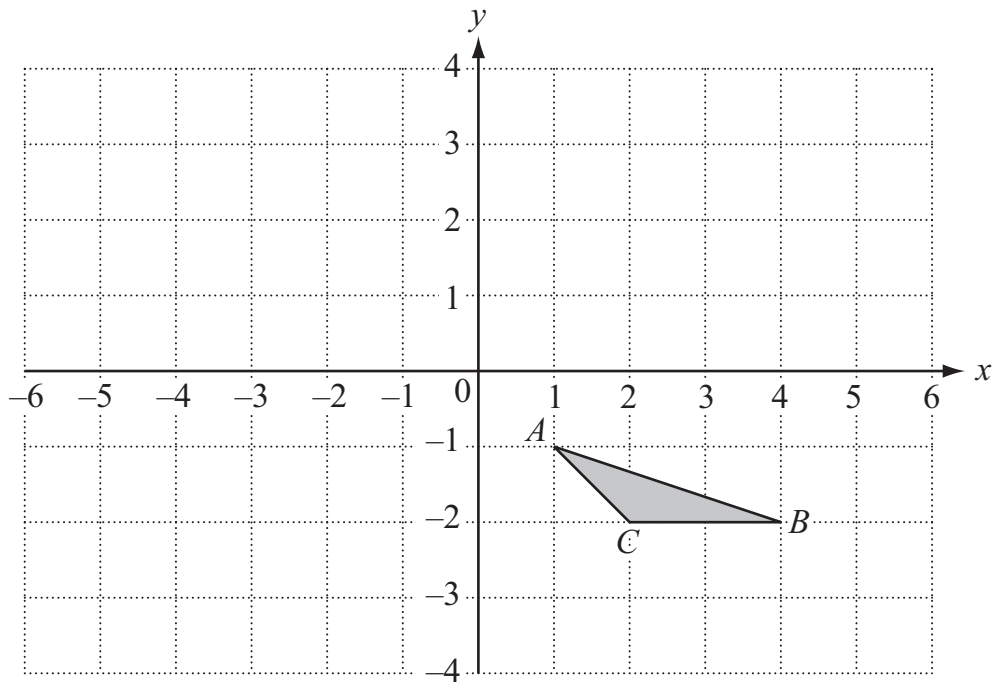
(a) Write down the coordinates of *B*.

(............. , ...) [1]

(b) Triangle *ABC* is reflected in the *x*-axis.

Write down the coordinates of the image of point *A*.

(............. , ...) [1]

9 Suki is exploring how the amount of sun affects the growth of three bean plants.
Each day she records the height of the plants.
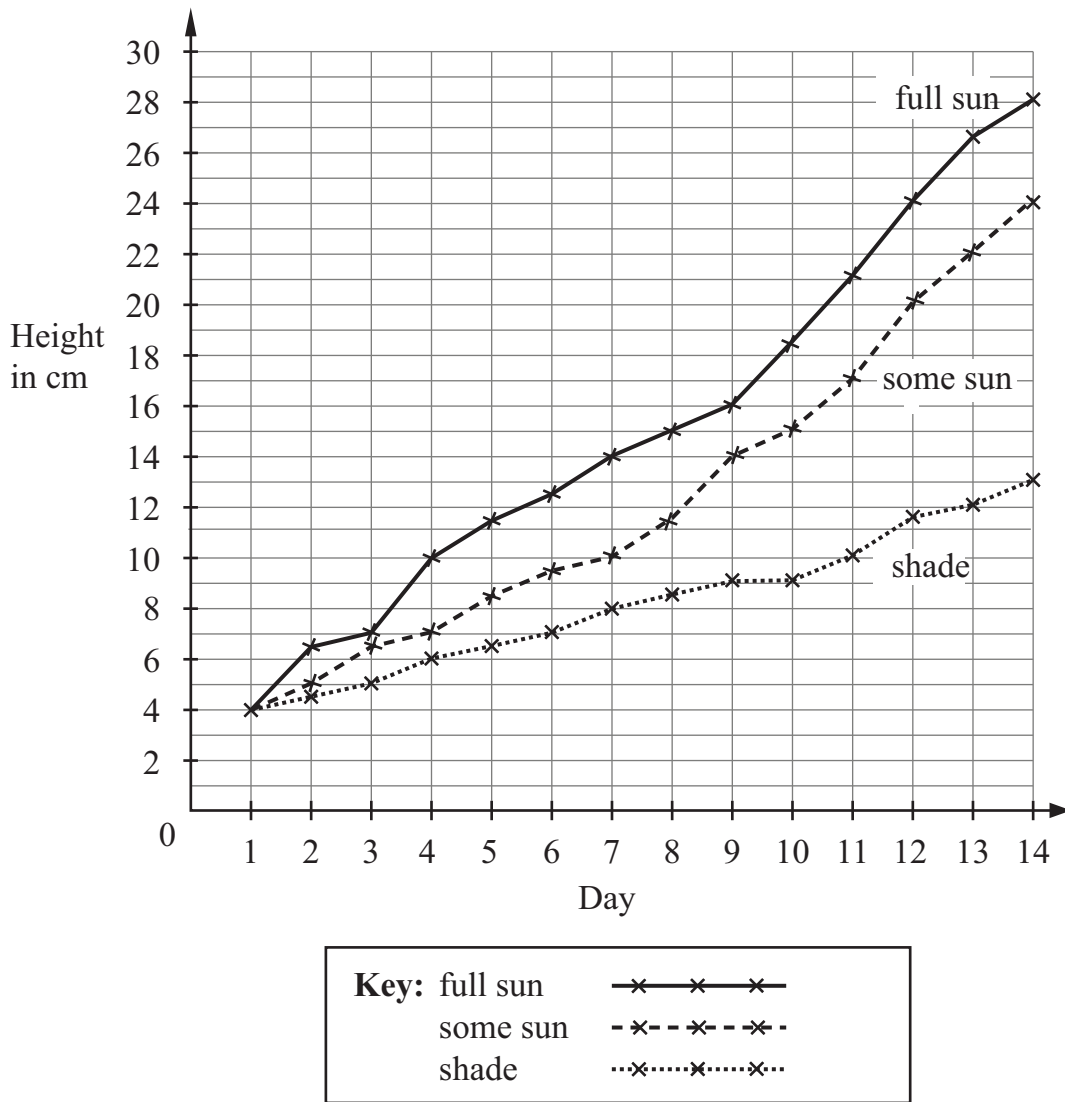
(a) On which day did the plant growing in the **shade** have a height of 8 cm?

Day .... [1]

(b) Calculate the difference in the heights of the plants growing in **full sun** and in
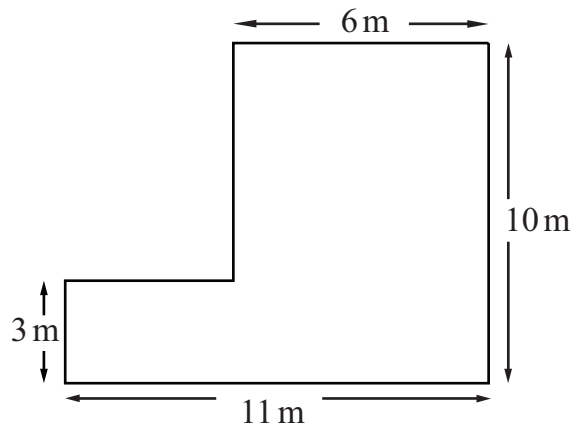**some sun** on day 14 of the experiment.

.... cm   [1]

(c) Write down a conclusion that Suki can make about how the amount of sun affects the
height of these bean plants.

....

.... [1]

10 Find the sum of the first four negative integers.

.... [1]

11 The diagram shows a floor plan.

Calculate the area.

.... m^2 [2]

12 Here is a mapping.

Input   Output

$$\binom{2}{4} \rightarrow \binom{4}{16}$$
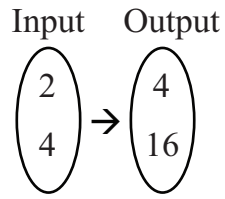
Look at the following functions.
Tick ($\checkmark$) the **two** functions that could represent the mapping.

$x \rightarrow 6x - 8$ ☐

$x \rightarrow 2x$ ☐

$x \rightarrow 4x - 6$ ☐

$x \rightarrow x^2$ ☐

[1]

13 There are two cycle routes.

Blue route	7¼ km
Red route	10 km

(a) David is cycling the red route.

He has cycled $8\frac{2}{3}$ km.

How much further does he have to cycle?

.... km   [1]

(b) Sanjit is cycling the blue route.
He takes a break exactly halfway.

How many kilometres has he cycled at this point?

.... km   [1]

14 The diagram shows a triangular tile.

7 cm

NOT TO
SCALE

7 cm
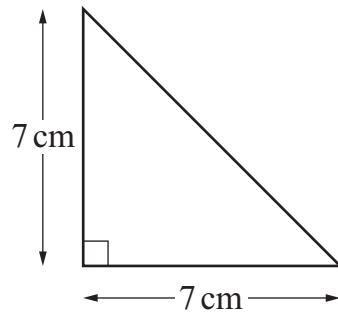
Draw a sketch to show how you would put **four** of these tiles together to make a square.

[1]

15 The diagram shows a 50 ml bottle.

50 ml

Calculate how many **litres** of liquid are needed to fill 80 of these bottles.

.... litres   [1]

16 Write the number

874.591

(a) correct to 2 decimal places,

.... [1]

(b) correct to 2 significant figures.

.... [1]

17 A box contains a large number of coloured balls.
Each ball is coloured red or green or blue or yellow.

Anoush takes a ball at random from the box and records its colour.
She then puts the ball back into the box.
She does this 200 times.

The table shows some of her results.

	Red	**Green**	**Blue**	**Yellow**	**Total**
Frequency	64	48			**200**
Relative frequency	0.32			0.16	**1**

Complete the table.

[2]

18 The diagram shows the median family income and the median age of people in 20 countries.
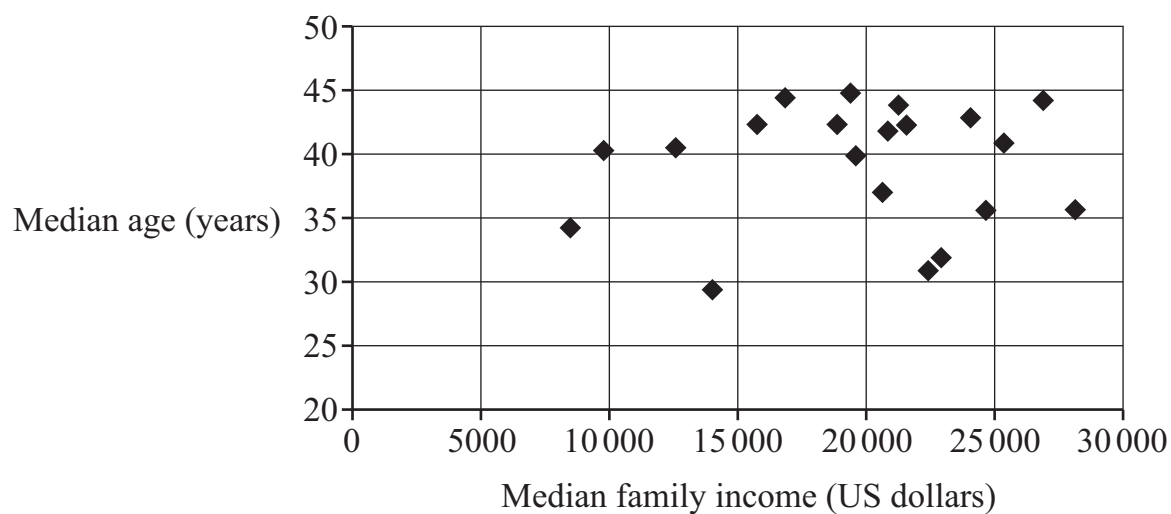
Does this diagram show a correlation between median age and median family income?

Yes ☐   No ☐

Give a reason for your answer.

....

.... [1]

19 Put **one** set of brackets in each calculation to make the answer correct.

(a) 4 + 9 × 6 − 4 = 22   [1]

(b) 24 ÷ 12 − 8 + 2 = 4   [1]

20 The diagram shows a square with a **perimeter** of 20 cm.

NOT TO
SCALE

Eight of these squares fit together to make a rectangle.
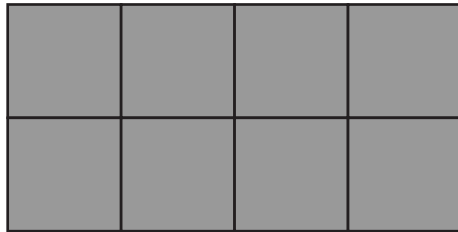
NOT TO
SCALE

Work out the **area** of the rectangle.

.... cm² [2]

21 Lemons cost $5.40 per kilogram.
Leyla buys 0.35 kg of lemons.

Calculate how much Leyla's lemons will cost.

$ .... [2]

22 The diagram shows a right-angled triangle.
Squares are drawn on each of the three sides.

NOT TO
SCALE
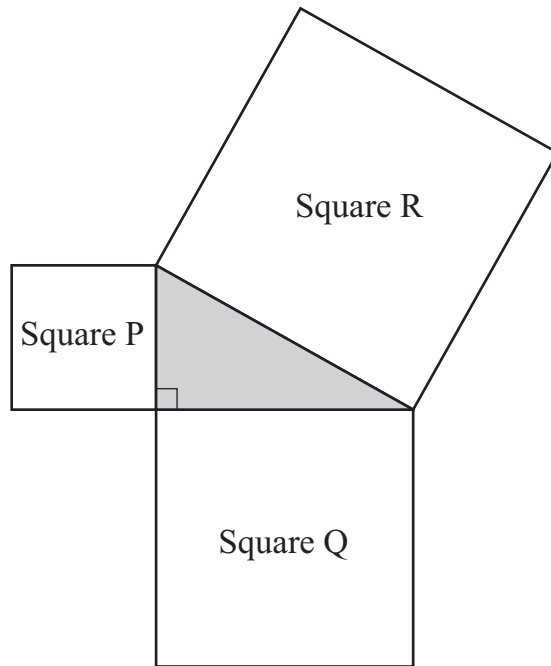
Square R

Square P

Square Q

Area of Square P = $17\,\text{cm}^2$.

Area of Square R = $50\,\text{cm}^2$.

Work out the area of Square Q.

.... cm^2 [1]

23 Write one of these symbols in each gap to make a true statement.

$$< \qquad > \qquad =$$
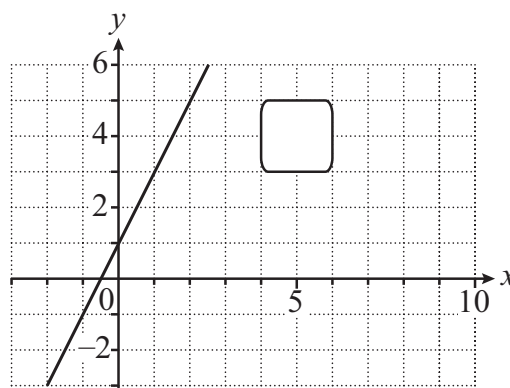
The first one has been done for you.

$$24 \div 2 \quad \underline{\quad < \quad} \quad 24$$

$$56 \times 1.02 \quad \underline{\qquad} \quad 56$$

$$16 \times 0.2 \quad \underline{\qquad} \quad 16$$

$$35 \div 0.55 \quad \underline{\qquad} \quad 35$$

$$\frac{40 \times 0.4}{0.4} \quad \underline{\qquad} \quad 40$$

[2]

24 Tick (✓) the graph of $y = 2x - 1$
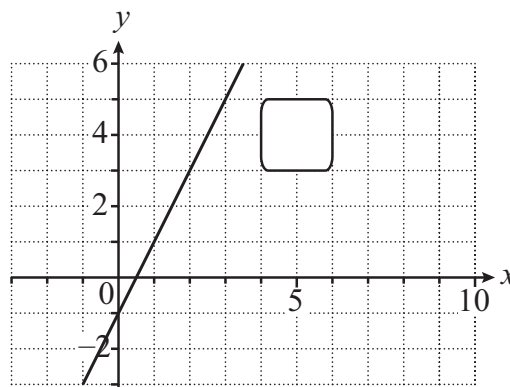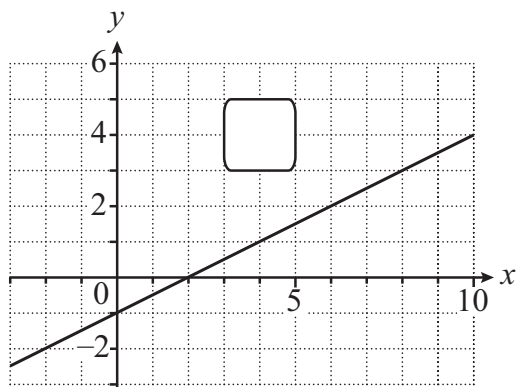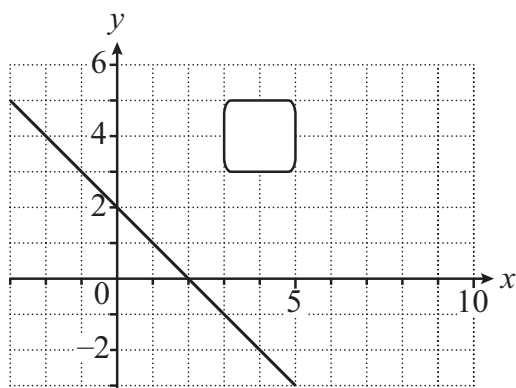
[1]

25 (a) Ami is 160 cm tall.
The ratio of Ami's height to Nadia's height is 8 : 7

Work out how many centimetres taller Ami is than Nadia.

.... cm [2]

(b) Ami has a mass of 72 kg.
Raphael has a mass of 108 kg.

Write Ami's mass as a fraction of Raphael's mass.
Give your answer in its simplest form.

.... [1]

26 In the diagram *AB* is parallel to *CD*.
Triangle *ACE* is an isosceles triangle.
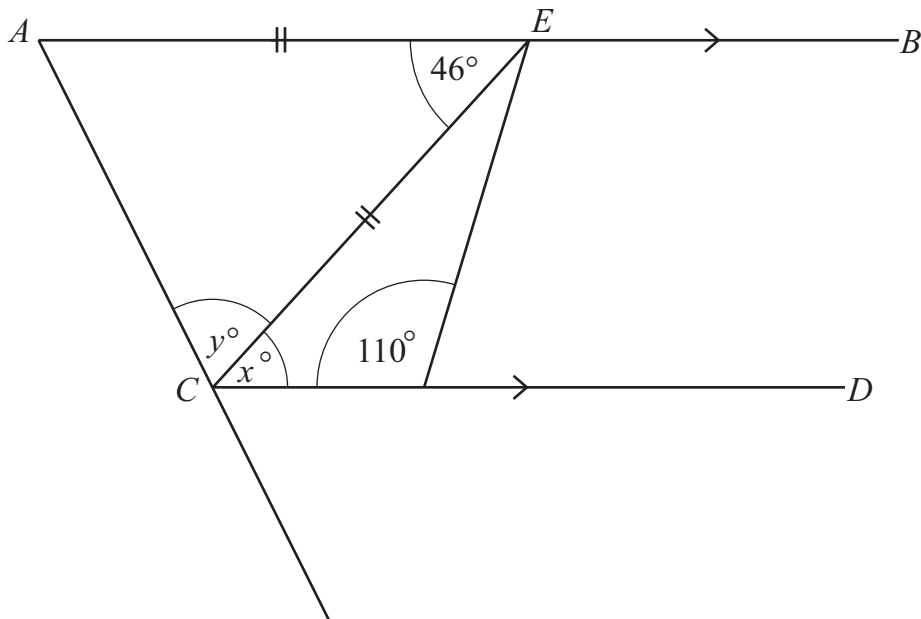
NOT TO
SCALE

Work out the values of *x* and *y*.

x = ...

y = ... [2]

27 (a) Here are four numbers.

$$0.02 \qquad\qquad 0.2 \qquad\qquad 2 \qquad\qquad 20$$

Write these numbers in the boxes to make a correct calculation.
Each number should be used only once.

$$\boxed{} \;+\; \dfrac{\boxed{} \times \boxed{}}{\boxed{}} \;=\; 40$$

[1]

(b) Work out

One-half of two-thirds of three-quarters of four-fifths of 200

.... [1]

28 The scale drawing shows the route for a cycling race, which starts and finishes at a point *P*.
The scale is 1 cm = 2 km.
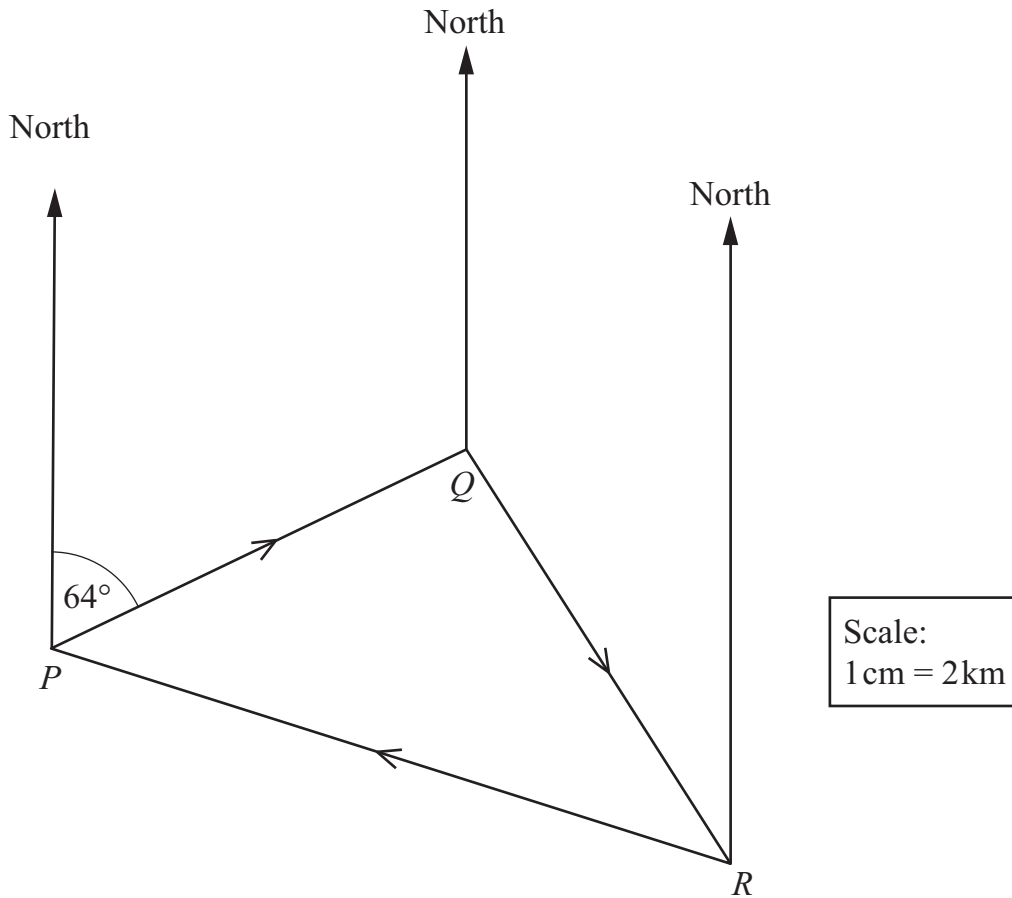
The line *PQ* on the drawing is 6.1 cm.

Complete the table to show the distance and the bearing for each stage of the route.

	Distance	Bearing
Stage 1: From *P* to *Q*	12.2 .... km	064 .... °
Stage 2: From *Q* to *R*	.... km	.... °
Stage 3: From *R* to *P*	.... km	.... °

[3]