Cambridge International Examinations
Cambridge Secondary 1 Checkpoint

CANDIDATE
NAME

CENTRE
NUMBER

CANDIDATE
NUMBER

MATHEMATICS **1112/02**

Paper 2 **October 2017**

1 hour

Candidates answer on the Question Paper.

Additional Materials: Calculator
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.
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.

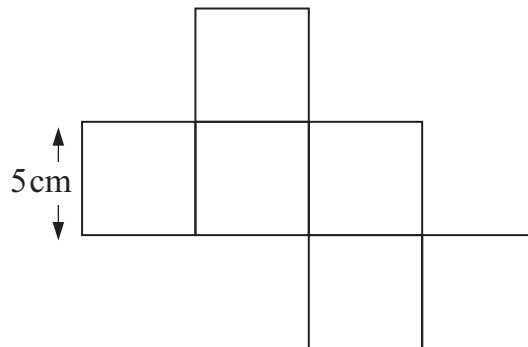This document consists of **16** printed pages.

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[Turn over

1 **(a)** Round 17 642 to the nearest thousand.

.... [1]

(b) Round 2.1486 to one decimal place.

.... [1]

2 This is a diagram of the net of a cube.

5 cm

Calculate the volume of the cube.

.... cm^3 [1]

3 Here are the masses of three bags of flour.

1.2 kg   75 g $\frac{1}{2}$ kg

Work out the total mass in **kilograms**.

.... kg [1]

4 In this diagram *AB* is parallel to *CD* and *ECD* is a triangle.

NOT TO SCALE
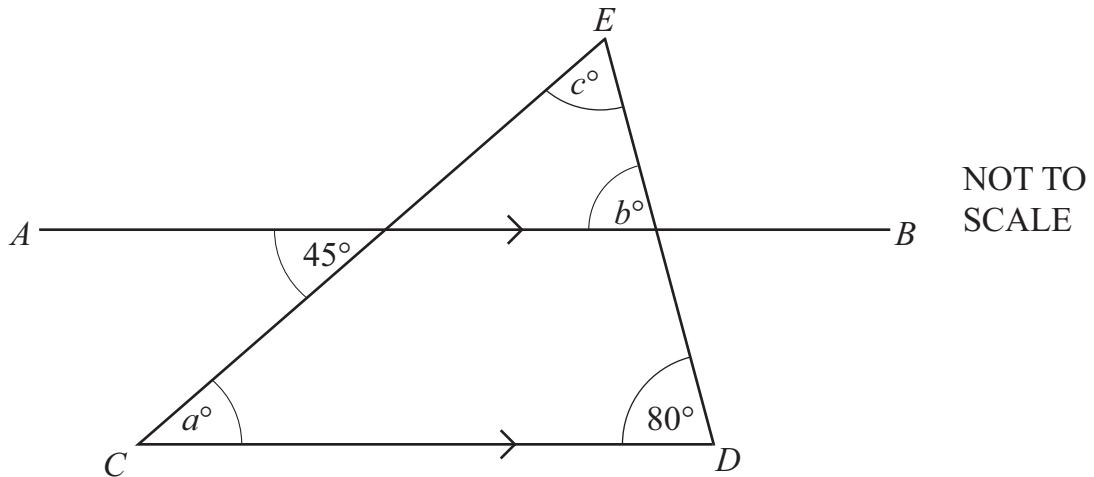
Work out the values of *a*, *b* and *c*.

(a)

a = ... [1]

(b)

b = ... [1]

(c)

c = ... [1]

5 Calculate the remainder when 3456 is divided by 7

remainder = ... [1]

6 Ahmed and Blessy each have a six-sided dice.
They each throw their dice 120 times.
The results of their throws are shown in the bar chart.
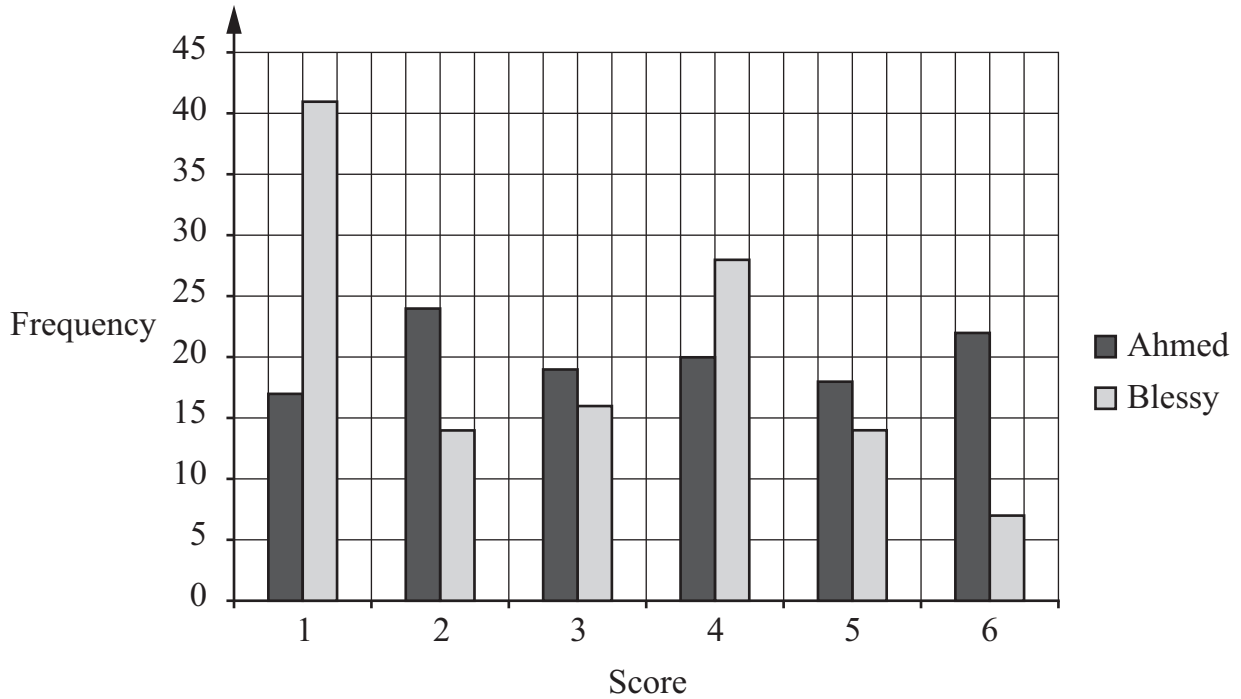
One of the dice is biased.

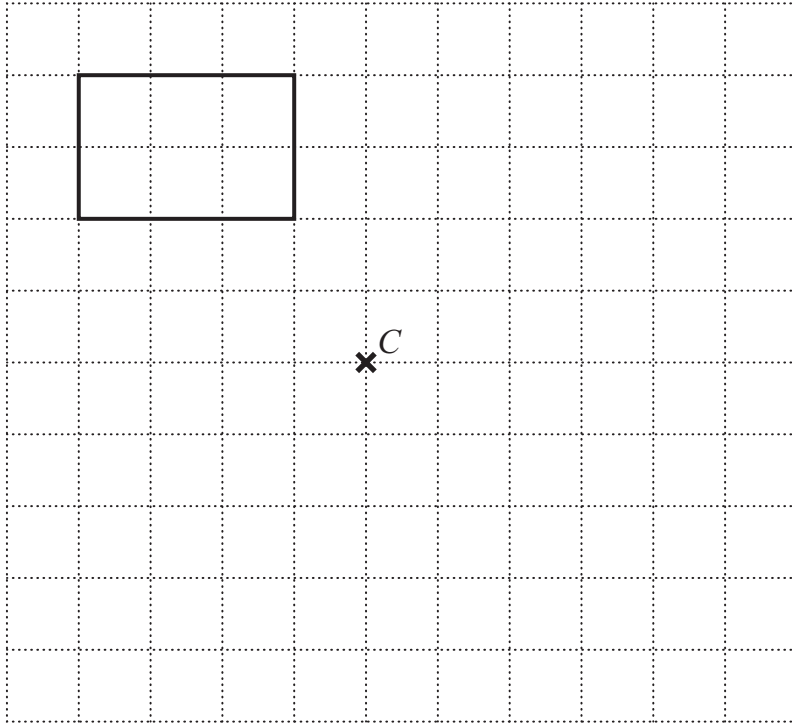Tick (✓) the name of the person that you think has the biased dice.

☐ Ahmed   ☐ Blessy

Give a reason for your answer.

....

.... [1]

7 Rotate the rectangle through 180°, centre *C*.

[1]

8 (a) Convert these fractions to decimals.

$$\frac{13}{16} = \text{...}$$

$$\frac{23}{32} = \text{...}$$

[1]

(b) Write down a decimal between $\frac{13}{16}$ and $\frac{23}{32}$

.... [1]

9 Here are the first five terms of a number sequence.

$$23 \quad 20 \quad 17 \quad 14 \quad 11$$

(a) Write down the 8th term of this sequence.

.... [1]

(b) Work out the nth term of this sequence.
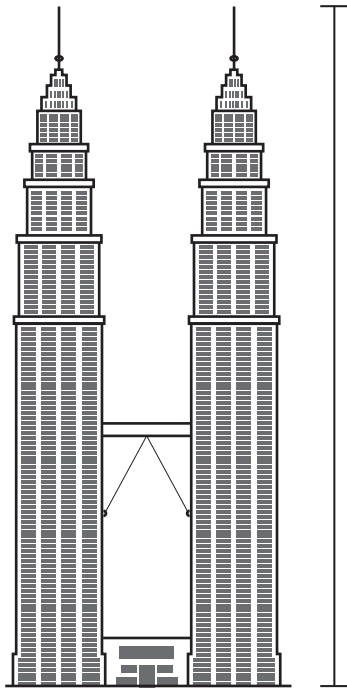
.... [2]

10 Bag A and Bag B each contain **three** coloured cubes.
Oliver takes a cube from Bag A and a cube from Bag B.

Complete the table to show the **nine** possible outcomes for the colours of Oliver's two cubes.

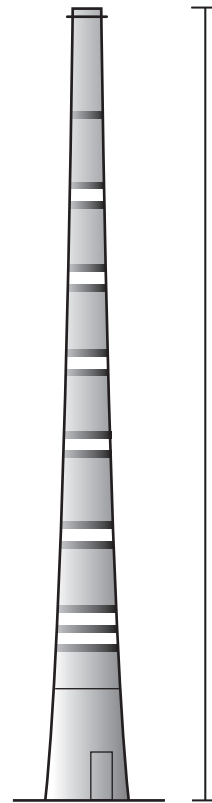| Bag A	Bag B
Blue	Green
Yellow	Green
Red	Green
Blue	White
Yellow	
Red	White
Blue	
Yellow	Red

[1]

11 The diagram shows scale drawings of two of the world's tallest buildings.

Petronas Twin Towers, Malaysia

Scale: 1 cm = 50 m

GRES-2 Power Station, Kazakhstan

Scale: 1 cm = 40 m

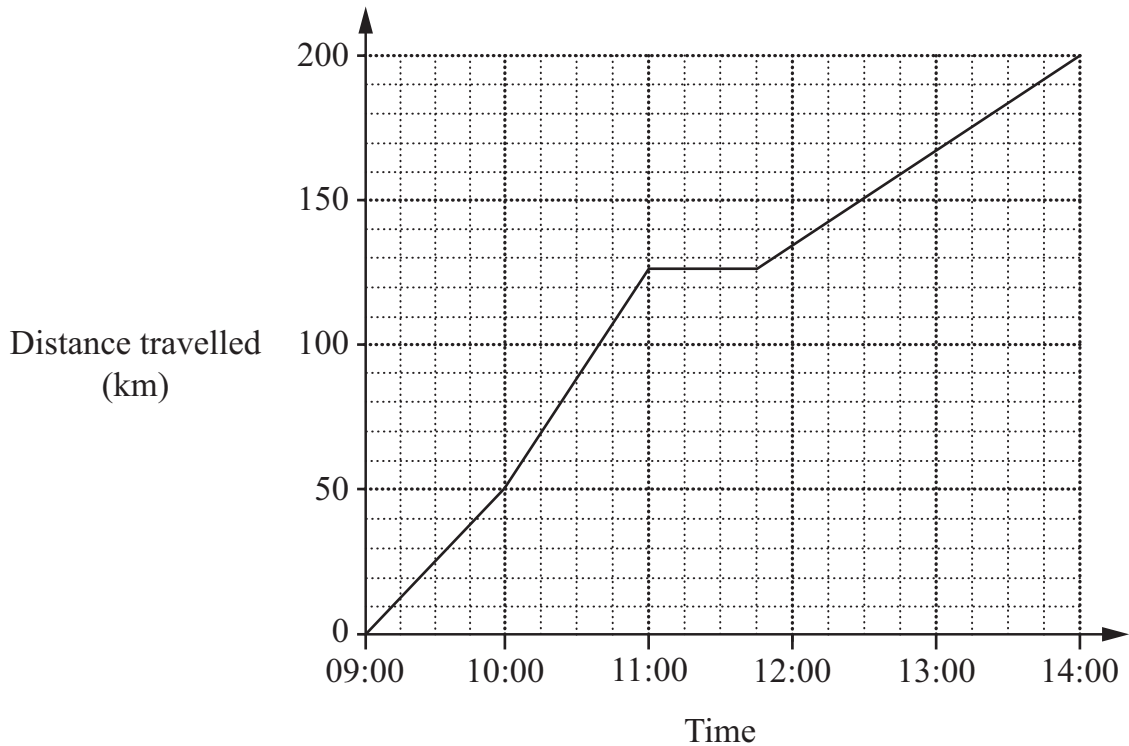Tick (✓) to show which of these buildings is tallest in real life.

Petronas Twin Towers ☐

GRES-2 Power Station ☐

Show clearly how you worked out your answer.

[2]

12 Angelique travels between two towns 200 km apart.
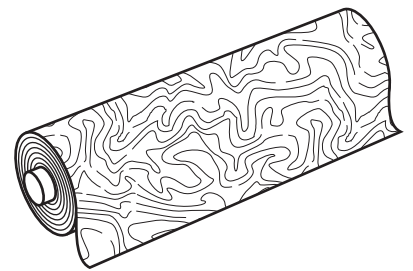This graph shows information about her journey.

Write down the times to complete this sentence.

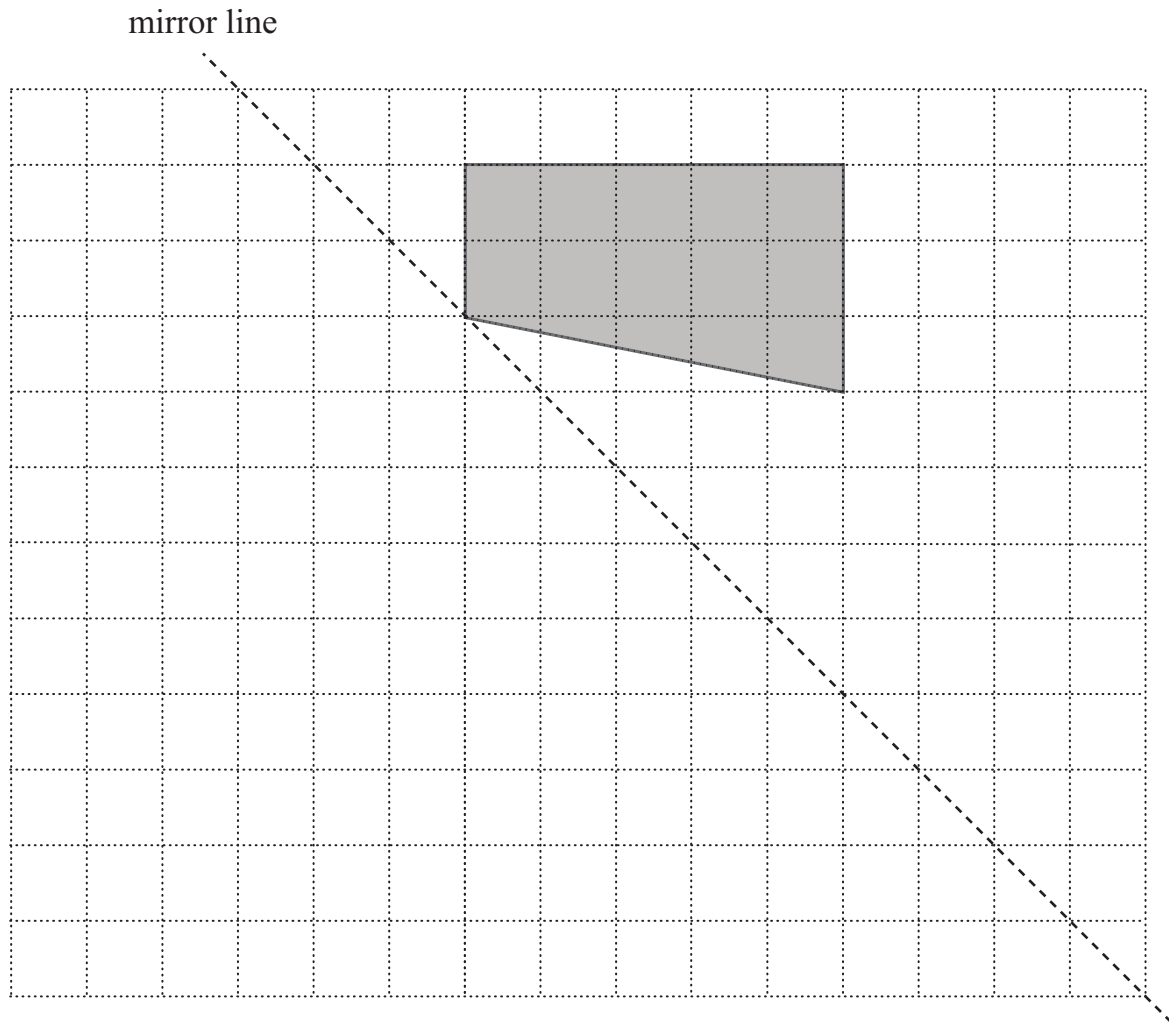Angelique is travelling fastest between .... and .... [1]

13 The cost of cloth is directly proportional to the length.
A 3.2-metre length of cloth costs $38
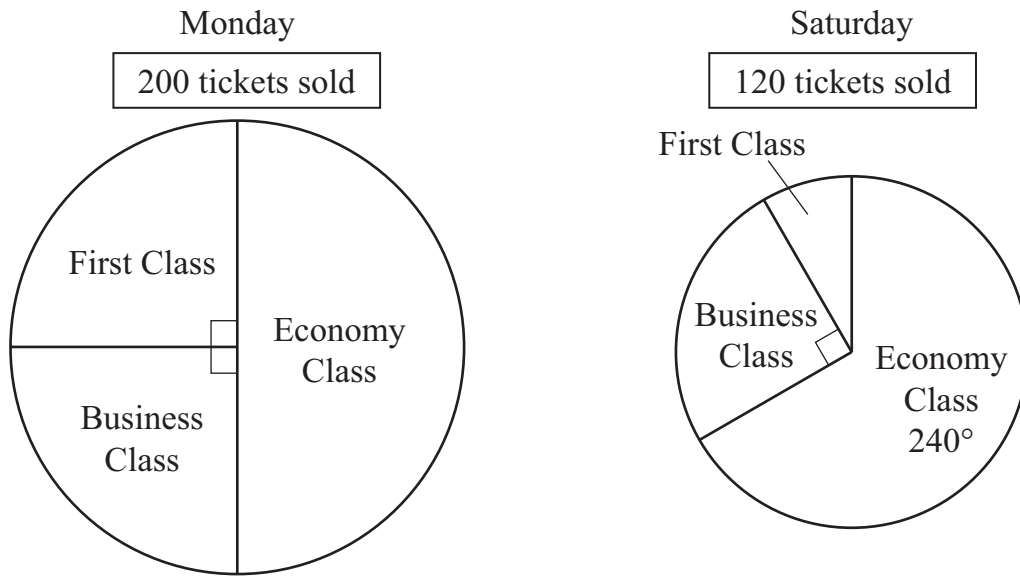
Work out the cost of a 2.4-metre length of cloth.

$ .... [2]

14 Reflect the quadrilateral in the mirror line.

mirror line

[2]

15 The pie charts show information about tickets sold by an airline on Monday and Saturday.

Monday

| 200 tickets sold |

First Class

Economy Class

Business Class

Saturday

| 120 tickets sold |

First Class

Business Class

Economy Class 240°

Find how many more Economy Class tickets were sold on Monday than on Saturday.

.... [2]

16 The number of instruments played by 50 girls is shown in the table.

Number of instruments	Number of girls
0	14
1	19
2	11
3	6

Calculate the mean number of instruments played by these girls.

.... [2]

1112/02/O/N/17

17 (a) The table shows the times it takes Chen and Aiko to type some words.

	Number of words	**Time taken**	**Typing speed (words per minute)**
Chen	2020	40 minutes	
Aiko	7200	2 hours 30 minutes	

Complete the table.

[2]

(b) Mia can type 45 words per minute.

Work out how long it will take her to type 1300 words.
Give your answer to the nearest minute.

.... minutes   [2]

18 *a*, *b* and *c* are numbers.

$a:b = 4:1$
$b:c = 3:2$

Write a number in the box to make this sentence correct.
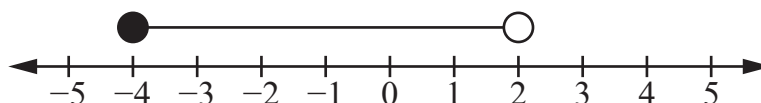
a is ☐ times the size of *c*.

[1]

19 Hassan wants to find out what type of hot drink people like best out of tea, coffee and hot chocolate.

Design a table that Hassan could use as a data collection sheet to collect his information.

[2]

20 (a) Draw a ring around the inequality represented on the number line.

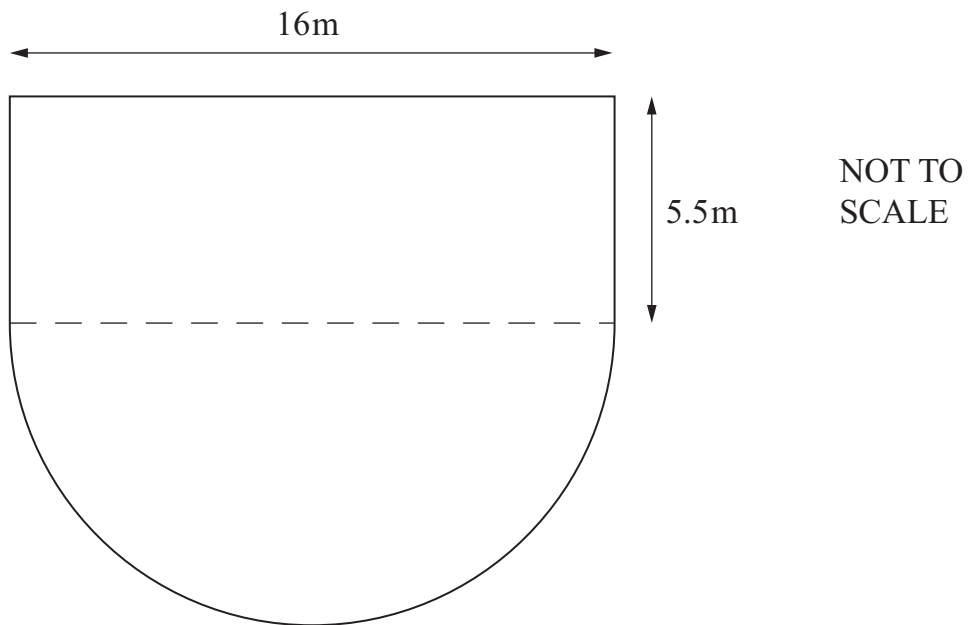$-4 \leq x < 2$ $-4 < x < 2$ $-4 < x \leq 2$ $-4 \leq x \leq 2$

[1]

(b) Solve the inequality.

$$\frac{y}{6} > 1.5$$

.... [1]

21 The diagram shows the floor plan of the stage at a theatre.

16m

5.5m

NOT TO
SCALE

The stage is made from a rectangle and a semicircle.
The rectangle is 16m long and 5.5m wide.

Work out the **total** area of the stage.
Give your answer correct to **two significant figures**.

.... m^2 [4]

22 A bottle contains 3.6 litres of water.
Water drips out of the bottom of the bottle at a rate of 20 millilitres per minute.

Work out how long it takes for the bottle to empty.
Give your answer in **hours**.

.... hours   [2]
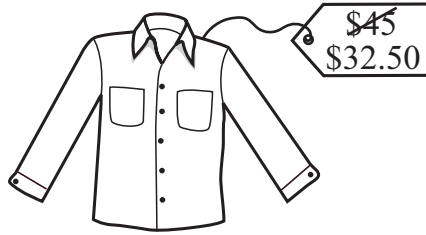
23 One solution of the equation

$$x^3 - 2x = 40$$

lies between 3 and 4

Use the method of trial and improvement to find this solution to one decimal place.
Show all your working in the table.
You may not need to use all the rows.

x	$x^3 - 2x$	Too big or too small?
3	21	Too small
4	56	Too big

$x = $ .... [3]

24 The original selling price of a shirt was $45
In a sale, the shirt is reduced to $32.50

Calculate the percentage reduction.

.... %   [2]

25 This table gives information about the parliaments of New Zealand and of Spain in 2014

Country	Number of people in parliament	Number of men	Number of women
New Zealand	121	82	39
Spain	350	224	126

Draw a ring around the country that had a greater proportion of women in its parliament.

New Zealand   Spain

Show how you worked out your answer.

[2]

1112/02/O/N/17 **[Turn over**

26 This chart shows the ages of 100 people in seven age groups.
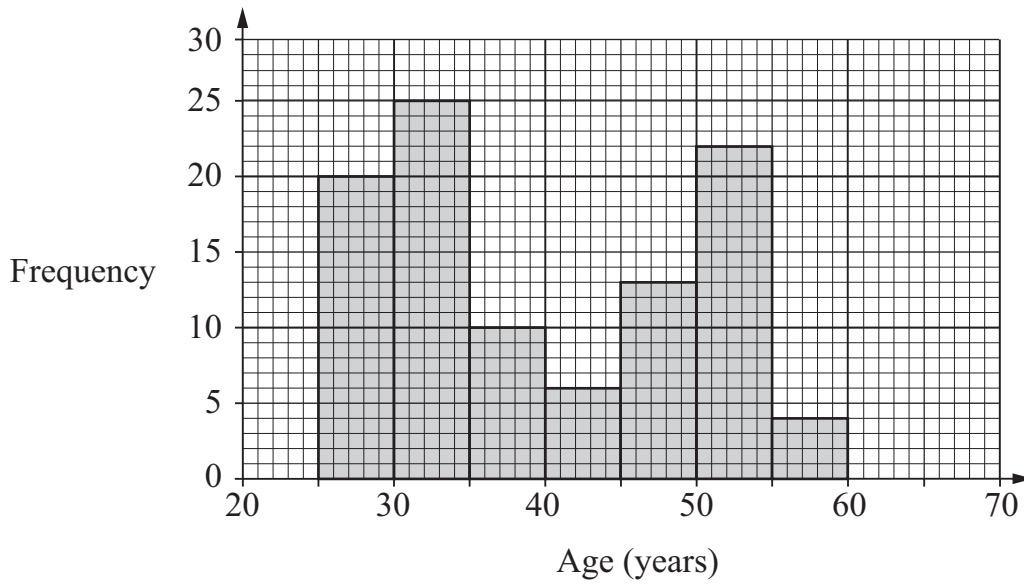
Find the age group that includes the median age.

.... [1]