

Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

Forename(s)

Candidate signature

GCSE MATHEMATICS

Grades 3-4

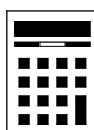
Calculator Test 2

Time allowed: 1 hour

Materials

For this paper you must have:

- a calculator
- mathematical instruments.



Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 45.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

Advice

- In all calculations, show clearly how you work out your answer.

For Examiner's Use	
Pages	Mark
2-3	
4-5	
6-7	
8-9	
10-11	
12	
TOTAL	

Answer **all** questions in the spaces provided

- 1 (a) Write $1\frac{4}{9}$ as an improper fraction.

[1 mark]

Answer _____

- 1 (b) Round 2.84 to 1 decimal place.

[1 mark]

Answer _____

- 2 Show that 2125 can be written as
a cube number **multiplied** by a prime number between 10 and 20

[2 marks]



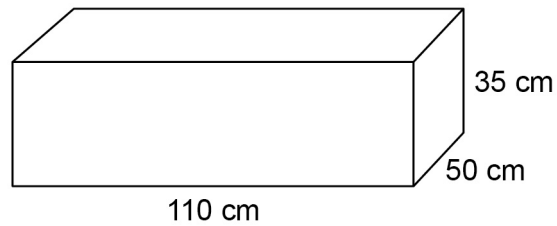
- 3** Eva thinks she can save water by having a shower instead of a bath.

Eva's shower

uses 10.8 litres per minute

lasts for 8 minutes.

Eva assumes that the water in her bath is in the shape of this cuboid.



$1000 \text{ cm}^3 = 1 \text{ litre}$

Using Eva's assumption, work out how many litres of water she saves by having a shower instead of a bath.

[5 marks]

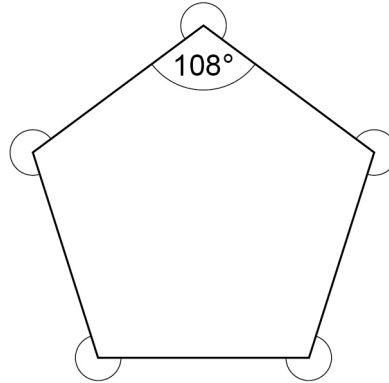
Answer _____ litres

- 4 The interior angle of a regular pentagon is 108°

Work out the sum of the five **reflex** angles at the vertices of a regular pentagon.

[3 marks]

Not drawn
accurately



Answer _____ degrees

- 5 On a train, there are between 60 and 70 people.

The ratio of adults to children is 5 : 4

Work out the **total** number of people on the train.

[2 marks]

Answer _____

- 6** Sam types a constant number of words per minute.
He takes 8 minutes to type a report of 416 words.
How long does it take him to type an essay of 1534 words?
Give your answer in minutes and seconds.

[3 marks]

Answer _____ minutes _____ seconds

- 7 (a)** Multiply out $5c(2d + 1)$

[2 marks]

Answer _____

- 7 (b)** Factorise $21x + 28$

[1 mark]

Answer _____

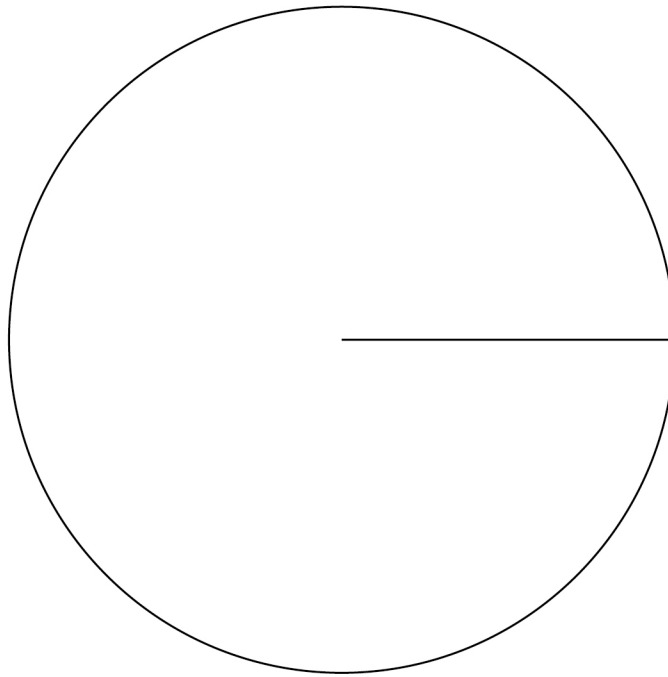


8

60 people were asked if they would vote in an election.

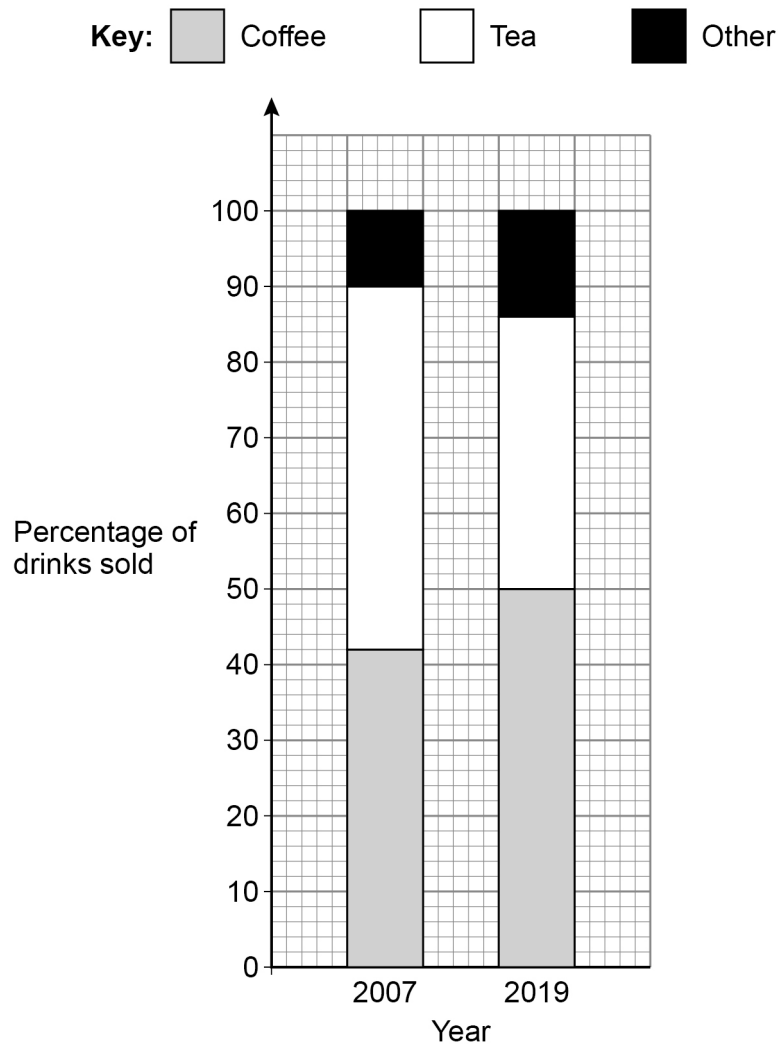
- $\frac{1}{4}$ of the people said No
- 20 people said Yes
- The rest said Maybe

Draw and label a pie chart to show this information.

[3 marks]

9

The composite bar chart shows information about the **percentage** of drinks sold by a café in 2007 and 2019



In 2007 the café sold a total of 24 000 drinks.

How many **more** teas than coffees were sold?

[2 marks]

Answer _____

5

Turn over ►



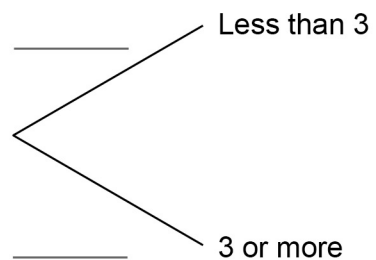
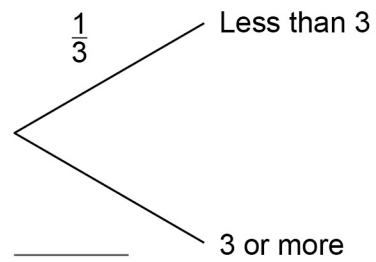
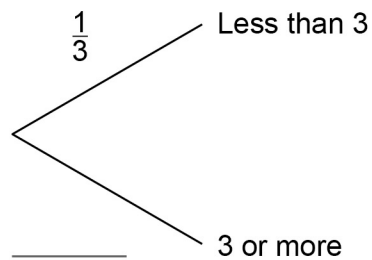
- 10** Solve $5(2x - 1) = 6x + 9$ **[3 marks]**

$x =$ _____

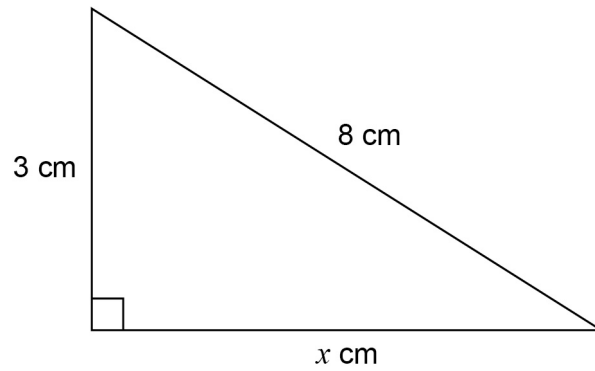
- 11** Complete the tree diagram. **[1 mark]**

1st dice

2nd dice



12

Not drawn
accuratelyWork out the value of x as a decimal.**[3 marks]**

Answer _____

13

The counters in a bag are red or blue.

One fifth of the counters are red.

Work out the ratio red counters : blue counters

Circle your answer.

[1 mark]

1 : 4

1 : 5

4 : 5

1 : 6

8
--

Turn over ►

14

$$\mathbf{a} = \begin{pmatrix} 2 \\ 7 \end{pmatrix} \quad \mathbf{b} = \begin{pmatrix} 5 \\ -2 \end{pmatrix}$$

Work out $3\mathbf{a} + \mathbf{b}$ **[2 marks]**

Answer

$$\left(\right)$$

15

Here is a formula for the amount of water needed to cook rice.

$$w = 1.5r + 0.5$$

 w is the number of cups of water needed r is the number of cups of rice to be cooked

How many cups of rice can be cooked with 20 cups of water?

[3 marks]

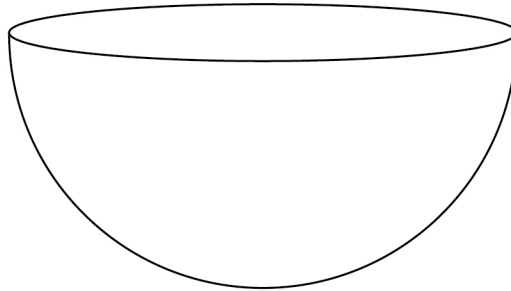
Answer _____



16

$$\text{Volume of a sphere} = \frac{4}{3} \pi r^3 \text{ where } r \text{ is the radius}$$

A container is a hemisphere of radius 30 cm



Sand fills the container at a rate of 4000 cm^3 per minute.

Does it take **less than** a quarter of an hour to fill the container?

You **must** show your working.

[3 marks]

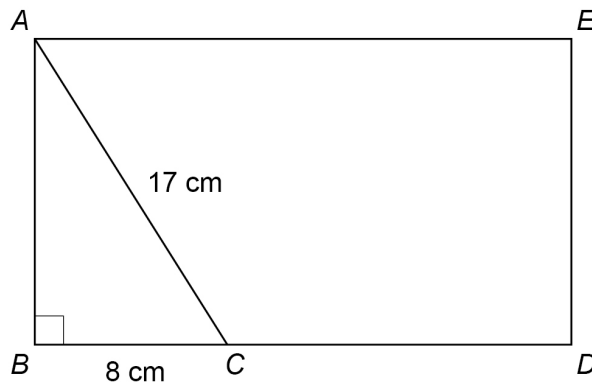
Answer _____



- 17 The diagram shows rectangle $ABDE$ and right-angled triangle ABC .

$$AC = 17 \text{ cm}$$

$$BC = 8 \text{ cm}$$



Not drawn
accurately

$$BC : CD = 1 : 2$$

Work out the area of rectangle $ABDE$.

[4 marks]

Answer _____ cm^2

END OF QUESTION

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