

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

F

Foundation Tier

Paper 2 Calculator

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- mathematical instruments
- a calculator.



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 80.
- 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 - 13	
14 - 15	
16 - 17	
18 - 19	
20 - 21	
22	
TOTAL	

1 Work out the value of 10% of 50

[1 mark]

Answer _____

2 Work out the value of 3^2

[1 mark]

Answer _____

3 Write down the probability of rolling a 5 on an ordinary fair dice.
Give your answer as a fraction.

[1 mark]

Answer _____

4 12 pens cost £2.40
How much do 30 pens cost?

[3 marks]

Answer £ _____

5 Solve $4x + 1 = 39$

[2 marks]

$x =$ _____

6 Here is a list of numbers

7 4 9 10 4 3 5 8

6 (a) Write down the mode.

[1 mark]

Answer _____

6 (b) Work out the mean.

[2 marks]

Answer _____

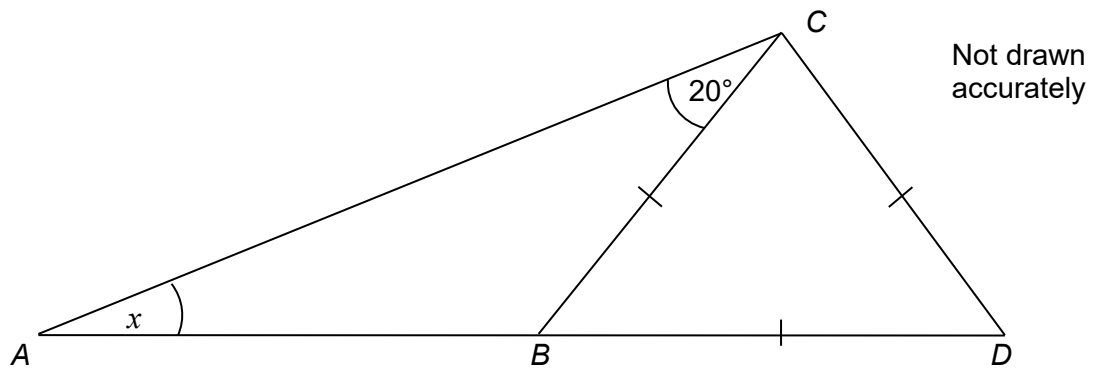
- 7 Sam spends exactly £40 on petrol.
The petrol costs £1.75 per litre.
Work out the number of litres of petrol she buys.
Give your answer to 1 decimal place.

[3 marks]

Answer _____ litres

8

The diagram shows a triangle ACD and an **equilateral** triangle BCD



Work out the size of angle x

[3 marks]

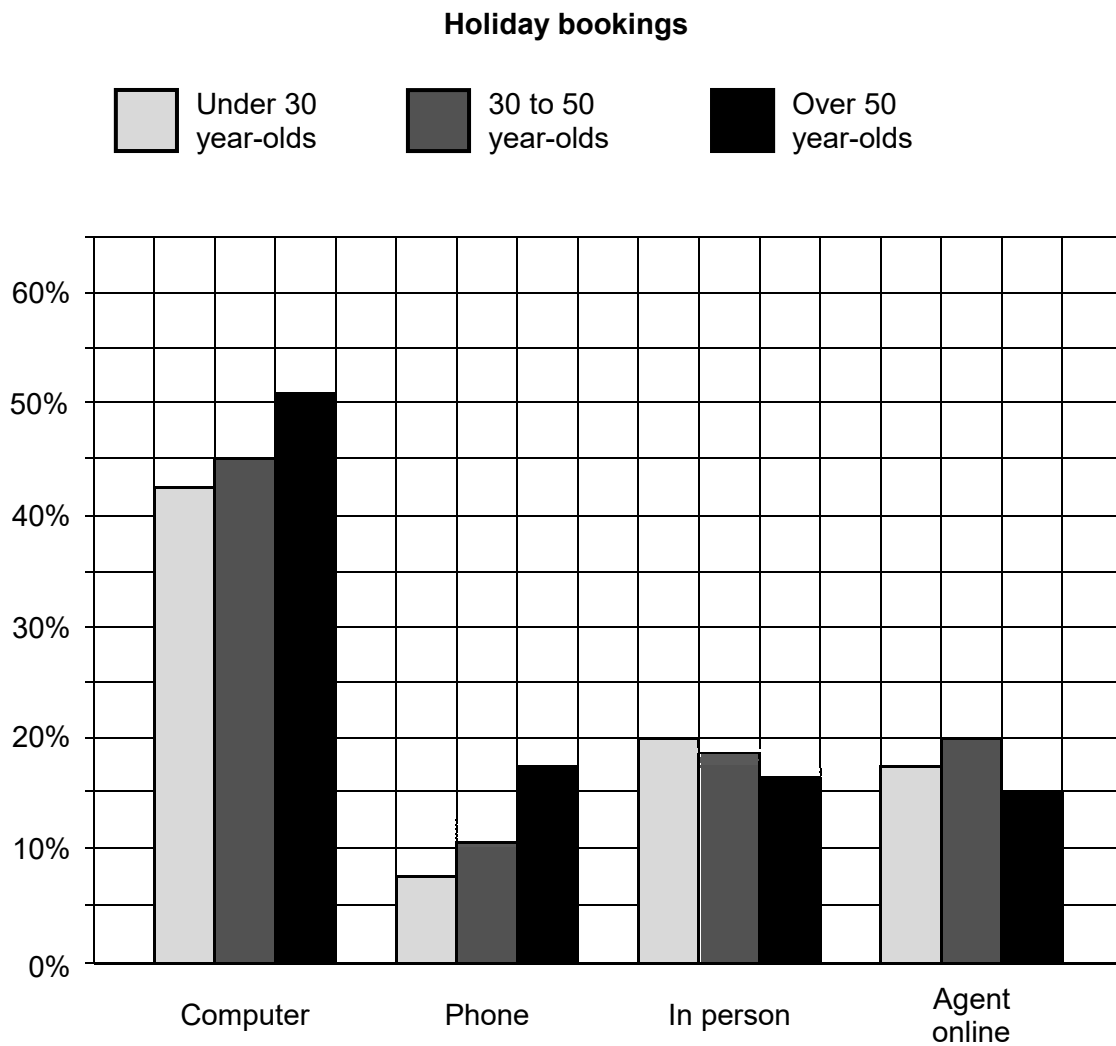
Answer _____ °

Turn over for the next question

Turn over ▶

9

The bar chart shows information about how holiday bookings are made.



9 (a) Which **two** ways of booking are most popular for under 30 year-olds?

[2 marks]

Answer _____ and _____

- 9 (b)** In total, what percentage of 30 to 50 year-olds booked in person or with an agent online?
Give your answer to the nearest 10%

[2 marks]

Answer _____ %

- 9 (c)** Make **two** comparisons of the data for 30 to 50 year-olds with 50 year-olds and over.

[2 marks]

Comparison 1 _____

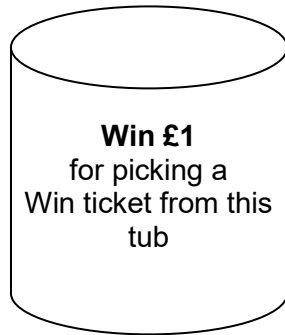
Comparison 2 _____

Turn over for the next question

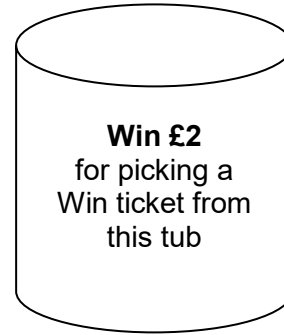
Turn over ▶

10 Here is a game at a school fair.

Blue tub

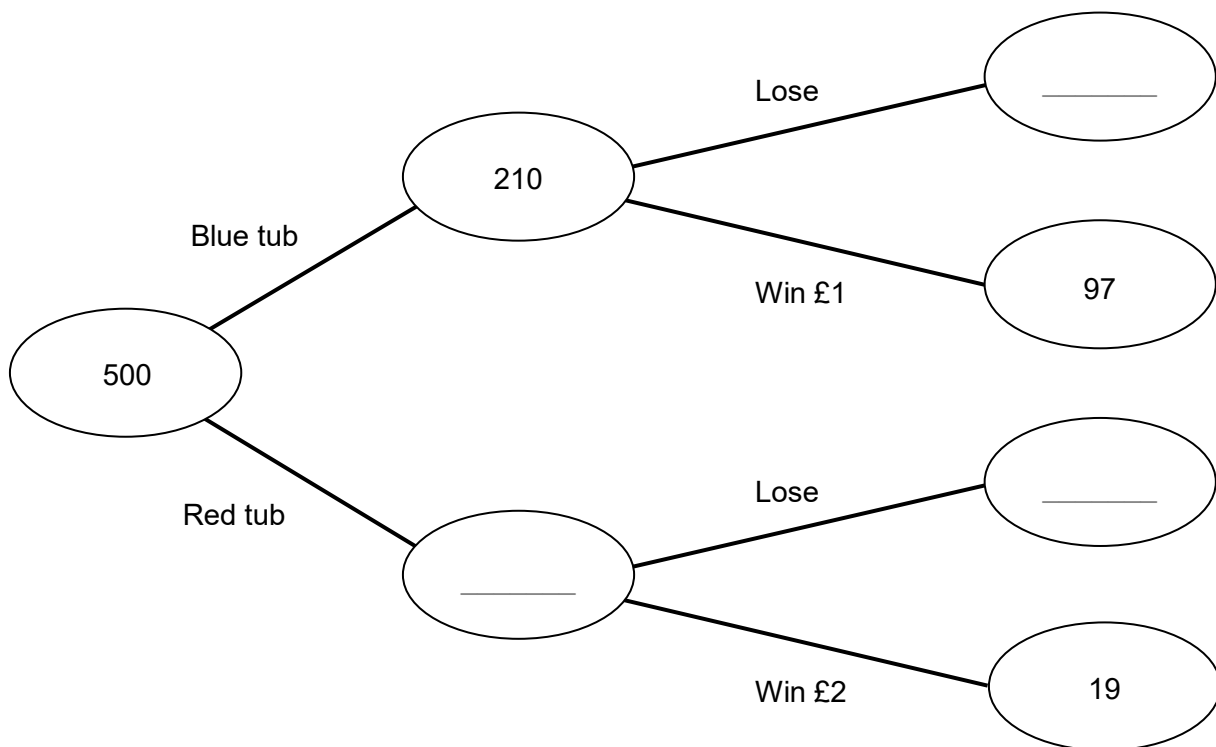


Red tub



500 people play the game at the fair.

The frequency tree shows some of the outcomes.



10 (a) Complete the frequency tree.

[2 marks]

10 (b)

A player has one go at the game.

Use the frequency tree to estimate the probability that the player wins some money.

[2 marks]

Answer _____

11

There are between 20 and 30 students in a class.

The ratio of left-handed students to right-handed students is 3 : 8

How many students are in the class?

[2 marks]

Answer _____

Turn over for the next question

- 12** A cake shop makes 120 cakes and 720 doughnuts each day.
Each person works for 8 hours a day and makes either cakes or doughnuts.
In 1 hour a person can make 3 cakes or 30 doughnuts.

- 12 (a)** Work out the minimum number of people needed each day.

[4 marks]

Answer _____

12 (b)

The cake shop makes some changes.

In 1 hour each person now makes 1 more cake **or** 20% more doughnuts.

Cakes are sold for £4.80

Doughnuts are sold for 25p

The manager does these calculations.

Making cakes for 1 hour

$$1 \text{ more cake} = 3 + 1 = 4 \text{ cakes}$$

$$\text{Sales of cakes} = 4 \times \text{£}4.80 = \text{£}18.50$$

Making doughnuts for 1 hour

$$20\% \text{ more doughnuts} = 30 + 20 = 50 \text{ doughnuts}$$

$$\text{Sales of doughnuts} = 50 \times 25 = \text{£}125$$

$$\text{Total from sales} = \text{£}18.50 + \text{£}125 = \text{£}143.50$$

Check his working, correct any mistakes and write out the correct calculations below.

[4 marks]

Making cakes for 1 hour

$$1 \text{ more cake} = \underline{\hspace{10em}}$$

$$\text{Sales of cakes} = \underline{\hspace{10em}}$$

Making doughnuts for 1 hour

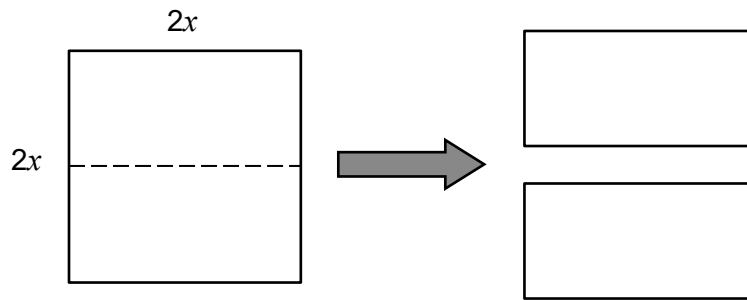
$$20\% \text{ more doughnuts} = \underline{\hspace{10em}}$$

$$\text{Sales of doughnuts} = \underline{\hspace{10em}}$$

$$\text{Total from sales} = \underline{\hspace{10em}}$$

Turn over ▶

- 13** A square with sides $2x$ is cut into two equal rectangles as shown.



- 13 (a)** Tick a box to show whether each statement is true or false.

[3 marks]

	True	False
area of one rectangle = x^2	<input type="checkbox"/>	<input type="checkbox"/>
perimeter of one rectangle = $6x$	<input type="checkbox"/>	<input type="checkbox"/>
area of square = $2 \times$ area of one rectangle	<input type="checkbox"/>	<input type="checkbox"/>
diagonal of the square = $2x$	<input type="checkbox"/>	<input type="checkbox"/>

- 13 (b)** The perimeter of each rectangle is 27 cm

Work out the area of the square.

[3 marks]

Answer _____ cm^2

14 This formula works out the tax you pay on what you earn.

$$T = 0.2(E - 12570)$$

T is the tax you pay in pounds.

E is the amount you earn in pounds.

14 (a) How much tax do you pay if you earn £24 000?

[2 marks]

Answer £ _____

14 (b) What is the most you can earn without paying tax?

[1 mark]

Answer £ _____

14 (c) Alison pays £6300 tax.

Work out the amount she earns.

[3 marks]

Answer £ _____

15 (a) Solve the inequality $\frac{2x}{3} \leq 4$

[2 marks]

Answer _____

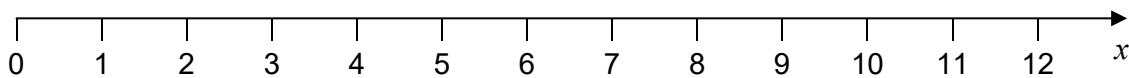
15 (b) Solve the inequality $4(x + 1) > 12$

[2 marks]

Answer _____

15 (c) Represent the solution set that satisfies **both** answers to part (a) and (b) on the number line.

[1 mark]



Do not write
outside the
box

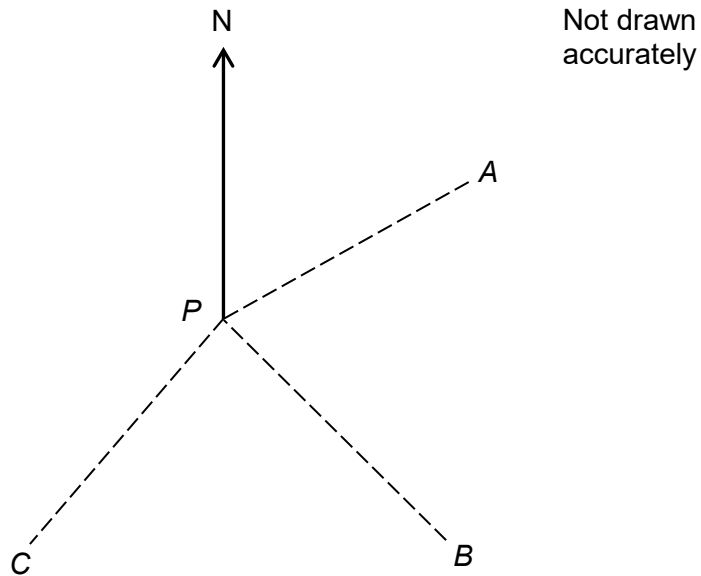
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ANSWER IN THE SPACES PROVIDED**

5

Turn over ▶

- 16** Amy (*A*), Ben (*B*) and Clare (*C*) start jogging from *P* at the same time.
They all jog at 10 km per hour
Amy jogs on a bearing of 055°
Ben jogs on a bearing of 150°
Clare jogs on a bearing of 240°



- 16 (a)** How long does it take Ben to jog 5 kilometres?
Give your answer in minutes.

[1 mark]

Answer _____ minutes

16 (b)

Clare says,

“After 1 hour Amy and Ben will have jogged 10 kilometres each,
10 miles + 10 miles equals 20 miles, so they are 20 miles apart.”

Is she correct?

Tick a box.

Yes

No

Give a reason for your answer.

[2 marks]

16 (c)

Who is closer to Ben after 1 hour?

Tick a box.

Amy

Clare

You **must** show your working.**[2 marks]**

- 17 1 mile = 5280 feet
 1 foot = 12 inches
 1 inch = 2.54 cm

Use the given conversions to show that 1 mile is approximately 1600 metres.

[3 marks]

- 18 Tins of baked beans are sold in different pack sizes.



1 tin for £1.20



1 pack of 4 for £3.50
 or
 2 packs of 4 for £6.50



1 pack of 6 for £5

What is the cheapest way to buy 24 cans of baked beans?

You **must** show your working.

[4 marks]

Answer _____

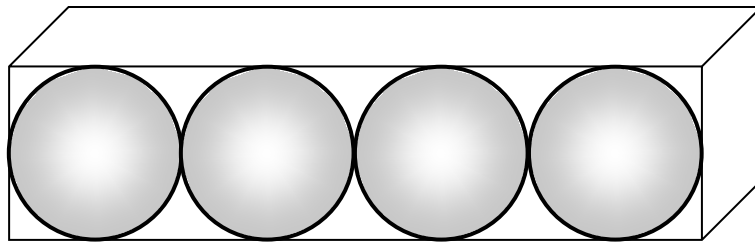
19 Volume of a sphere = $\frac{4}{3}\pi r^3$ where r is the radius.

19 (a) Work out the volume of a sphere of radius 6 cm.

[2 marks]

Answer _____ cm³

19 (b) Four spheres of radius 6 cm are packed tightly into a cuboid as shown.



Work out the volume of the cuboid.

[4 marks]

Answer _____ cm³

20

Here are two piles of the same type of paper.

Each sheet of paper weighs 5 g.

The taller pile weighs 7.5 kg.



height of taller pile : height of shorter pile = 5 : 3

Work out the number of sheets of paper in the shorter pile.

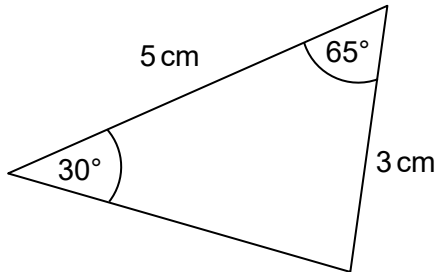
[3 marks]

Answer _____

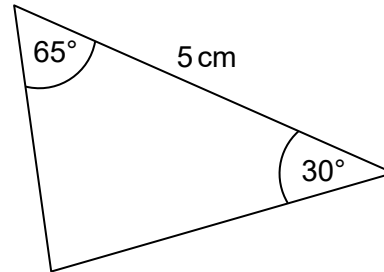
21

Here are four triangles.

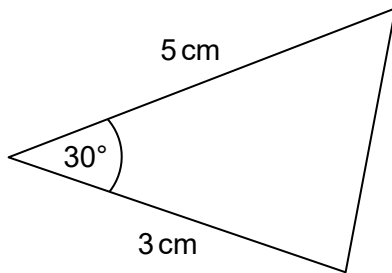
J



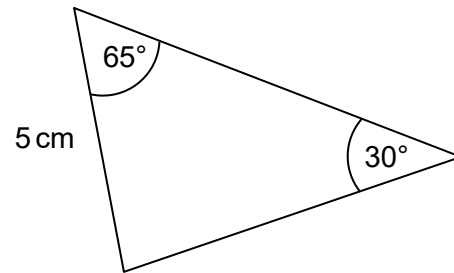
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L



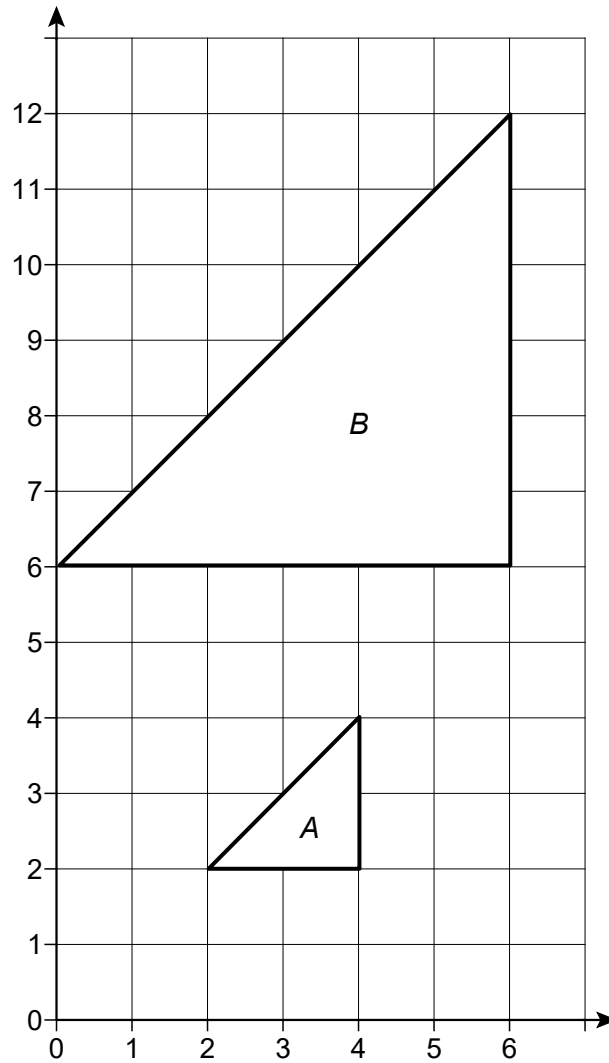
M

Which **two** triangles are congruent?

Give a reason for your answer.

[2 marks]

22

Describe fully the single transformation that maps triangle *A* to triangle *B*.**[3 marks]**

END OF QUESTIONS**Copyright information**

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