AQA

Please write clearly, in block capitals.

Centre number ☐☐☐☐☐   Candidate number ☐☐☐☐

Surname _____

Forename(s) _____

Candidate signature _____

GCSE
MATHEMATICS

F

Foundation Tier   Paper 2 Calculator

Exam Date   Morning   Time allowed: 1 hour 30 minutes

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 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.

8300/2F

Answer **all** questions in the spaces provided.

1   What is the probability of rolling a 5 on an ordinary fair dice?

Circle your answer.

[1 mark]

$$\frac{1}{6} \qquad\qquad \frac{1}{5} \qquad\qquad \frac{5}{6} \qquad\qquad \frac{1}{2}$$

2   Which unit is **not** a unit of speed?

Circle your answer.

[1 mark]

km/h   mph   m/s   km

3   Work out 81 as a power of 3

Circle your answer.

[1 mark]

$$3^3 \qquad\qquad 3^4 \qquad\qquad 3^5 \qquad\qquad 3^6$$

4   Which statement is true?

Circle your answer.

[1 mark]

10% of 50 = 50% of 20

10% of 10 = 20% of 20

10% of 20 = 20% of 10

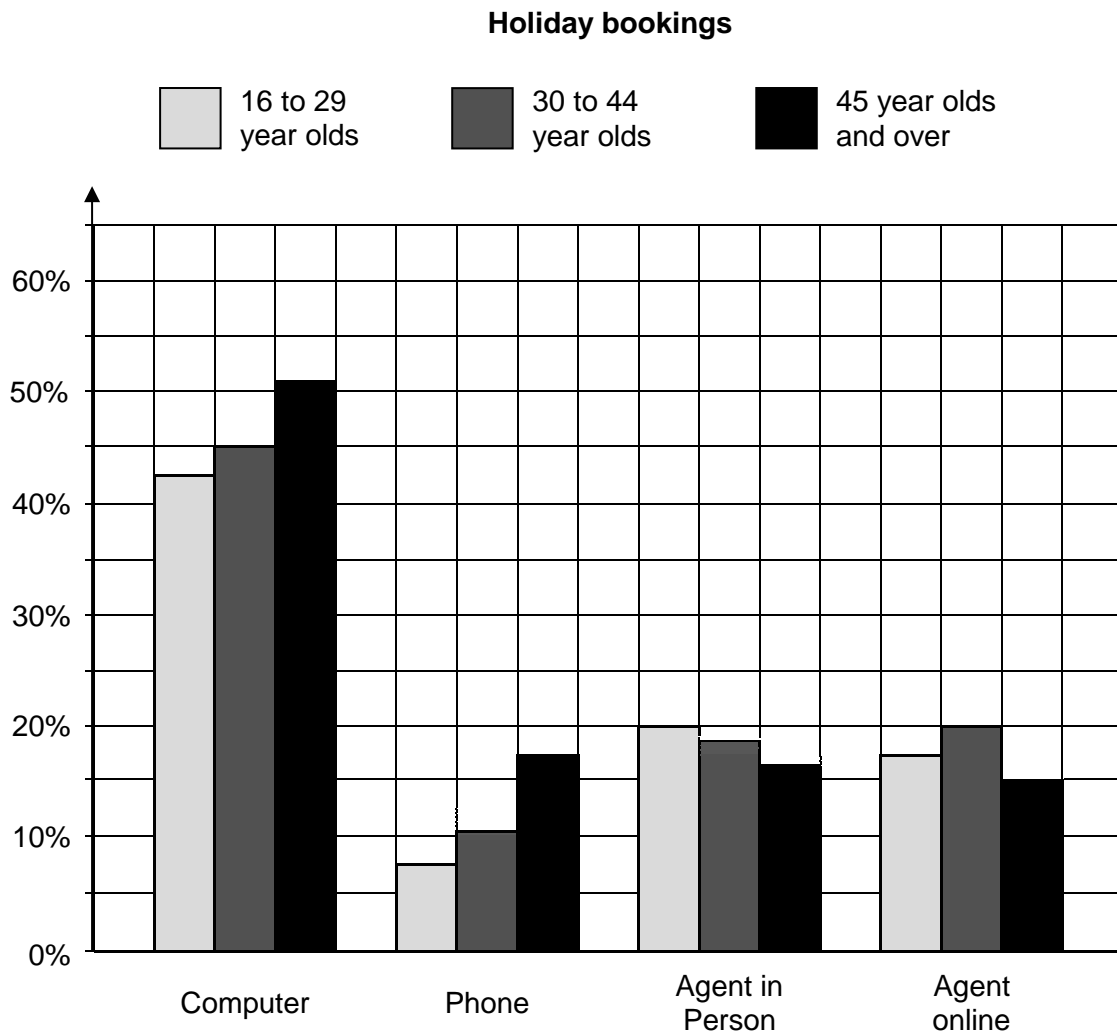10% of 40 = 25% of 100

5   15 rulers cost £3

How much do 40 rulers cost?

[2 marks]

Answer £ _____

Turn over for the next question

6 The bar chart shows how people in different age groups book their holidays.

Holiday bookings

16 to 29 year olds	30 to 44 year olds	45 year olds and over

6 (a) Which **two** ways of booking are most popular for 16 to 29 year olds?

[2 marks]

Answer _____ and _____

6 (b)   In total, what percentage of 16 to 29 year olds booked with an agent?

Give your answer to the nearest 10%

[2 marks]

_____

Answer _____ %

6 (c)   Compare the bookings for 30 to 44 year olds with the bookings for 45 year olds and over.

[2 marks]

_____

_____

_____

_____

_____

_____

_____

Turn over for the next question

7   Sam spends exactly £20 on petrol.

The petrol costs £1.45 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*.

Not drawn accurately
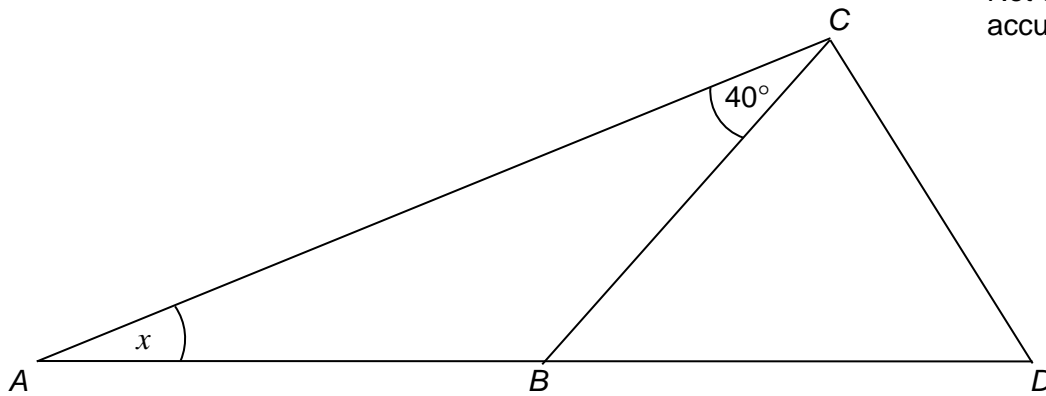
Work out the size of angle x.

[2 marks]

Answer _____ degrees

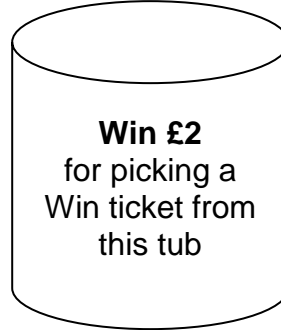**Turn over for the next question**

9 Jack makes a game for a school fair.

Players can win money by picking a 'Win' ticket from a tub.

A player chooses a tub by picking a blue disc or a red disc out of a bag.
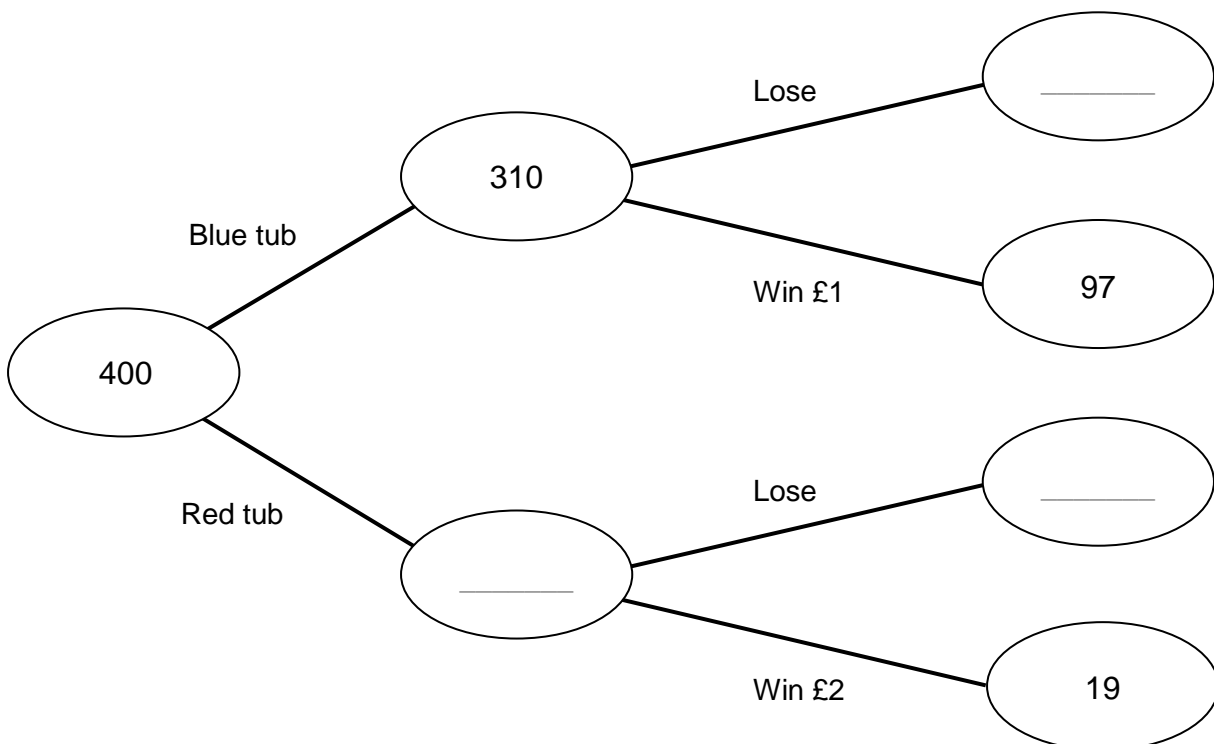
Blue tub

Win £1
for picking a
Win ticket from
this tub

Red tub

Win £2
for picking a
Win ticket from
this tub

400 people play the game at the fair.

The frequency tree shows some of the outcomes.

9 (a) Complete the frequency tree.

[2 marks]

9 (b) A player has one go at Jack's game.

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

[2 marks]

Answer _____

9 (c) Jack makes a profit of £25 from his game.

Work out how much Jack charges players to have a go at his game.

[3 marks]

Answer _____

10   A bakery makes 480 pizzas and 2400 rolls each day.

In 1 hour each baker can make 20 pizzas **or** 75 rolls.

Each baker works for 8 hours a day.

10 (a) Work out the **minimum** number of bakers needed each day.

[4 marks]

Answer

10 (b) The bakery makes some changes.

In 1 hour each baker now makes 10% more pizzas **or** 20% more rolls.

Pizzas are sold for £2.50

Rolls are sold for 8p

The manager does these calculations.

Making pizzas for 1 hour

10% more pizzas = 20 + 2   = 22 pizzas

Sales of pizzas = 22 × £2.50   = £55

Making rolls for 1 hour

20% more rolls = 75 + 20   = 95 rolls

Sales of rolls = 95 × 8   = £760

Total from sales = £55 + £760 = £815

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

[4 marks]

Making pizzas for 1 hour

10% more pizzas =

Sales of pizzas =

Making rolls for 1 hour

20% more rolls =

Sales of rolls =

Total from sales =

---

11 A square is cut into two equal rectangles as shown.
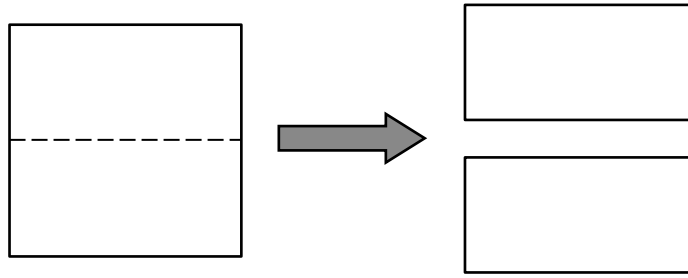
11 (a) Tick a box to show whether each statement is true or false.

[3 marks]

	True	False
area of the square $= 2 \times$ area of one rectangle		
perimeter of the square $= 2 \times$ perimeter of one rectangle		
longer side of one rectangle $= 2 \times$ shorter side of one rectangle		
diagonal of the square $= 2 \times$ diagonal of one rectangle		

11 (b) The perimeter of each rectangle is 24 cm

Work out the area of the square.

[3 marks]

Answer _____ cm^2

12 This formula works out the tax you pay.

$$T = 0.2(E - 10\,600)$$

T is the tax you pay in pounds.

E is the amount you earn in pounds.

12 (a) How much tax do you pay if you earn £20 000?

[2 marks]

Answer £ _____

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

[1 mark]

Answer £ _____

12 (c) Alison pays £5200 tax.

Work out the amount she earns.

[3 marks]

Answer £ _____

13   Circle the number written in standard form.

[1 mark]

0.5×10^4 5×10^{-4} 50×10^4 $5 \times 10^{0.4}$

14   There are between 25 and 35 students in a class.

The ratio of boys to girls is 4 : 7

How many students are in the class?

[2 marks]

Answer _____

15 (a) Solve the inequality $\dfrac{3x}{2} \leqslant 9$

[2 marks]
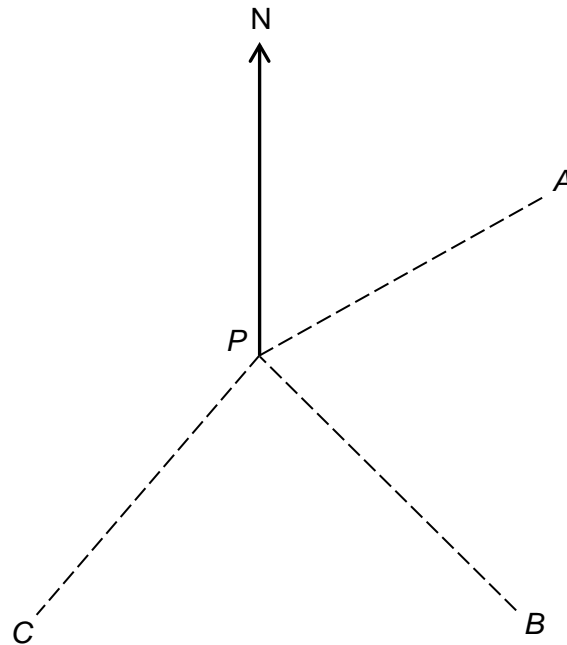
Answer

15 (b) Solve the inequality $4(x + 2) > 12$

[2 marks]

Answer

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

[1 mark]
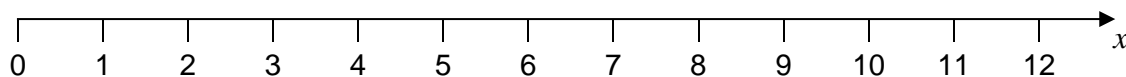
16   Ali (*A*), Bayo (*B*) and Carly (*C*) start walking from *P* at the same time.

They all walk at 4 mph

Ali walks on a bearing of 075°
Bayo walks on a bearing of 165°
Carly walks on a bearing of 230°

Not drawn
accurately

16 (a)   How long does it take Ali to walk 1 mile?

Give your answer in minutes.

[1 mark]

Answer _____ minutes

16 (b) Bayo says,

"After 1 hour Ali and Carly will have walked 4 miles each,

4 miles + 4 miles equals 8 miles,

so they are 8 miles apart."

Is he correct?

Tick a box.

Yes ☐   No ☐

Give a reason for your answer.

[2 marks]

16 (c) Who is closer to Bayo after 1 hour?

Tick a box.

Ali ☐   Carly ☐

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   Solve $x^2 = 30.25$

[2 marks]

Answer _____

19 Cola is sold in packs of 6 and packs of 8

1 pack of 6 for £1.95
or
2 packs of 6 for £3.50

1 pack of 8 for £2.64
or
2 packs of 8 for £5.00

What is the cheapest way to buy 48 cans of cola?

You **must** show your working.

[4 marks]

Answer

20   Here are two piles of the same type of paper.

Each sheet of paper is $\frac{7}{1000}$ cm thick.

The taller pile is $10\frac{1}{2}$ cm high.

$10\frac{1}{2}$ cm

height of taller pile : height of shorter pile = 3 : 2

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

[3 marks]

Answer _____

21 Here are four triangles.

Not drawn accurately

A

5 cm

3 cm

30°

B

5 cm

30°

3 cm

C

5 cm

30°

3 cm

D

5 cm

30°

3 cm
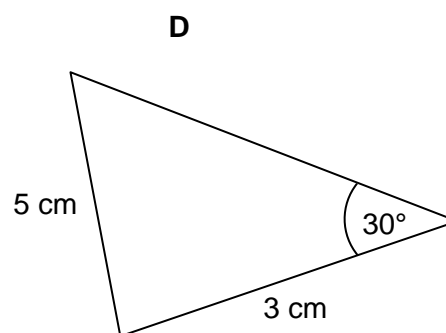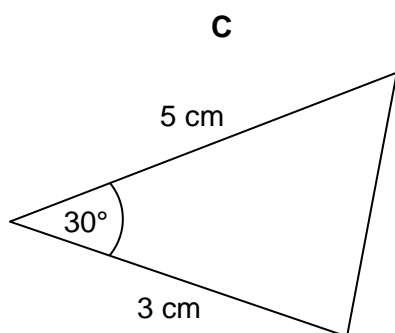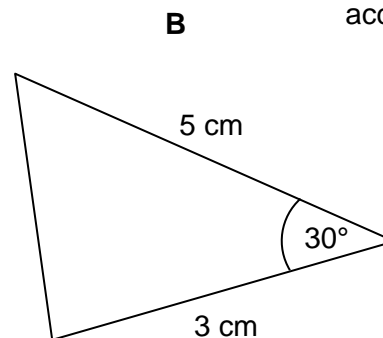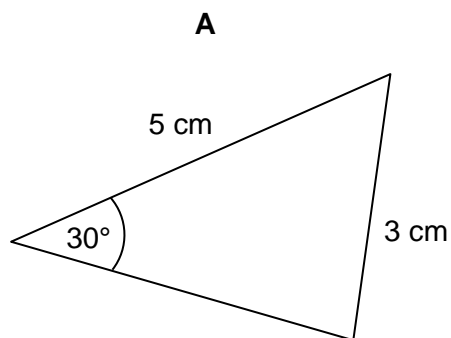
21 (a) Which **two** triangles are congruent?

Circle your answers.

[1 mark]

A   B   C   D

21 (b) Circle the reason for your answer to part (a).

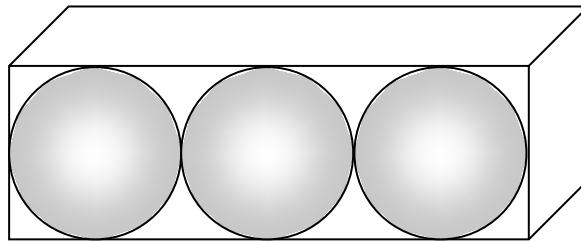**[1 mark]**

SSS   ASA   SAS   RHS

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

22 (a)   Work out the volume of a sphere of radius 8 cm

[2 marks]

Answer _____ cm^3

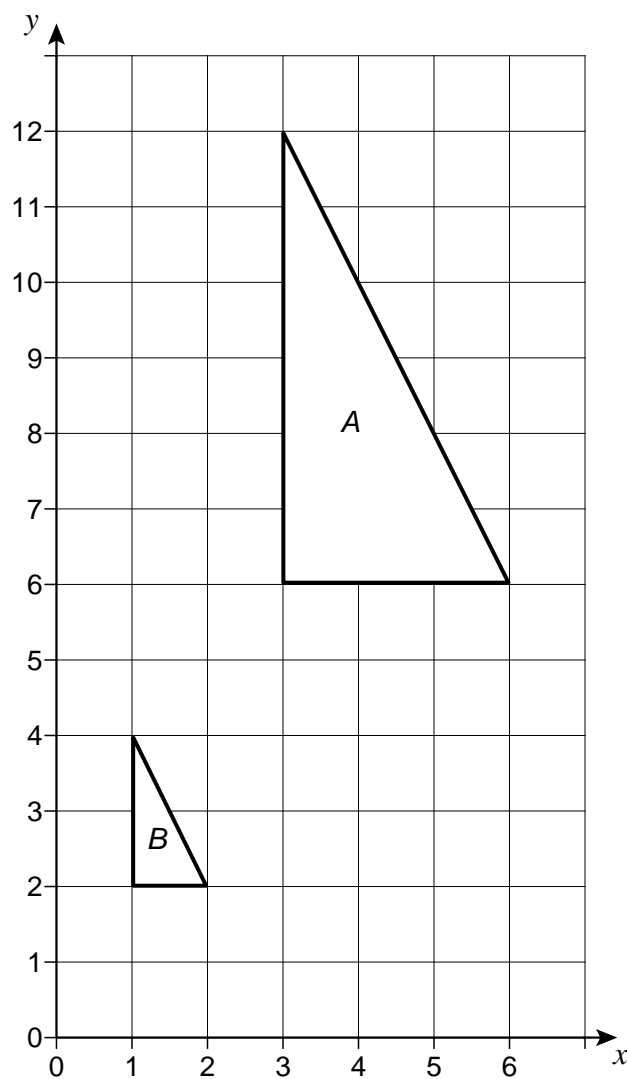**22 (b)**   Three spheres of radius 8 cm are packed tightly into a cuboid as shown.

Work out the volume of the cuboid.

[4 marks]

Answer _____ cm^3

23 Describe fully the **single** transformation that maps triangle *A* to triangle *B*.

[3 marks]

_____

_____

END OF QUESTIONS

There are no questions printed on this page

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ANSWER IN THE SPACES PROVIDED