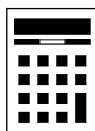# GCSE
MATHEMATICS

F

Foundation Tier   Paper 3 Calculator

Wednesday 8 November 2017   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.

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	
22–23	
24–25	
TOTAL	

Do not write outside the box

Answer **all** questions in the spaces provided

1 Circle the cube number.

[1 mark]

100   1000   10 000   100 000

2 A fair ordinary dice is thrown once.

Circle the probability of getting a 2 or a 3

[1 mark]

$\frac{1}{6}$ $\frac{2}{6}$ $\frac{3}{6}$ $\frac{5}{6}$

3 Circle the decimal that is greater than $\frac{1}{5}$ and less than $\frac{1}{4}$

[1 mark]

0.152   0.200   0.215   0.251

IB/M/Nov17/8300/3F

4 What is a **litre** a unit of?

Circle your answer.

[1 mark]

area   density   mass   capacity

5 2.5 kg of carrots cost £1.70

Work out the cost of 3.25 kg of carrots.

[3 marks]

_____

_____

_____

_____

_____

Answer £ _____

Turn over for the next question

Turn over ▶

6 Gina makes a sandwich using

bread (B) or a roll (R)

and

ham (H) or cheese (C)

and

salad (S) or pickle (P)

6 (a) List **all** the possible types of sandwich Gina could make.
One has been done for you.

[2 marks]

B H S

6 (b) What **fraction** of the possible types of sandwich have cheese **and** pickle?
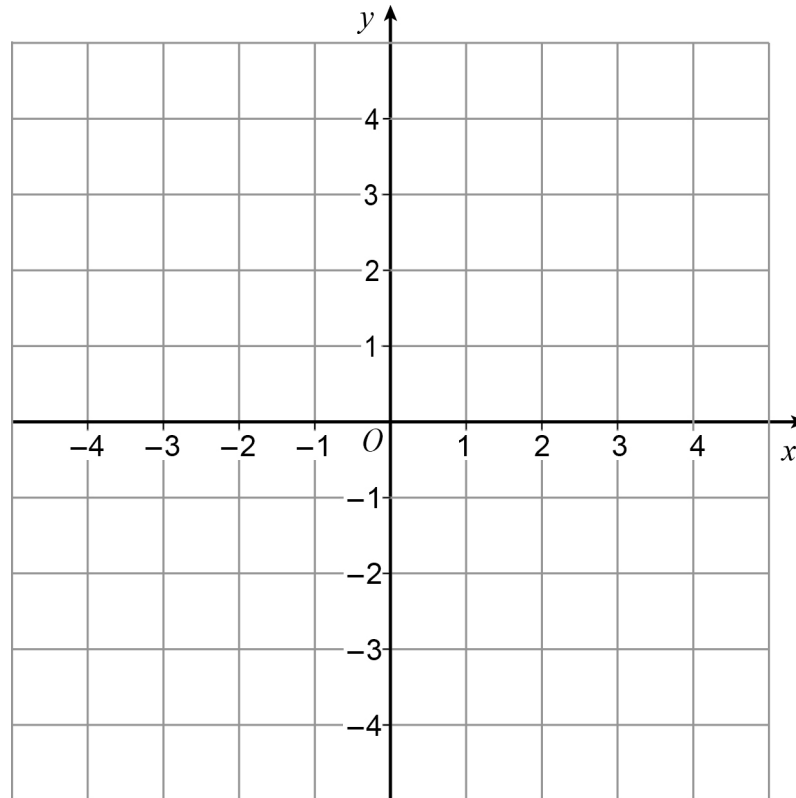
[1 mark]

Answer _____

7 *ABC* is a right-angled triangle.

        A is the point (–3, –2)

        B is the point (1, –2)

        C is a point on the line $y = 4$

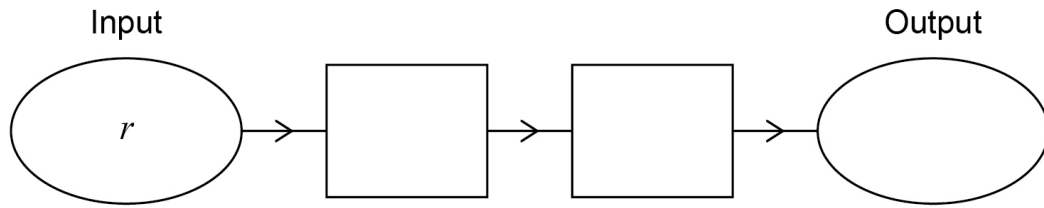**7 (a)** Draw triangle *ABC* on the centimetre grid below.

[3 marks]

7 (b) Work out the area of triangle *ABC*.
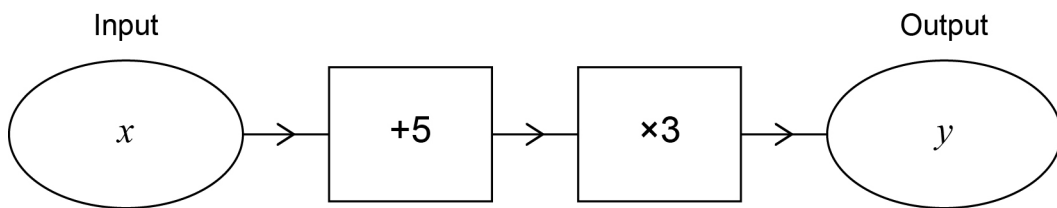
[2 marks]

_____

_____

_____

Answer _____ cm^2

8

Turn over ▶

8 (a) Complete the number machine so that $q = 7r - 2$

Input
Output

r

[2 marks]

8 (b) Write down the output y in terms of x.

Input
Output

x +5   ×3 y
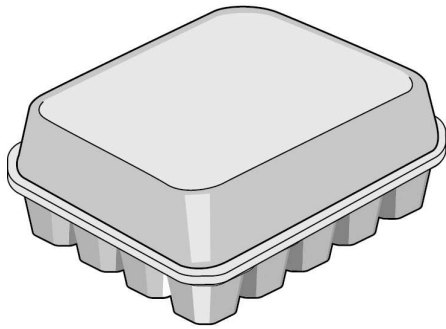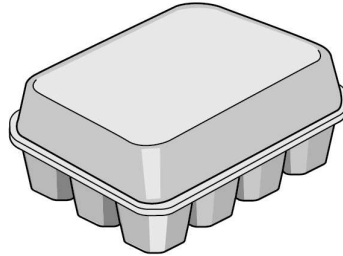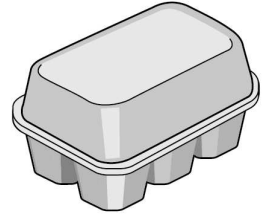
[1 mark]

Answer _____

9 A farmer has 580 eggs to put into boxes.

The boxes come in three sizes.

20 eggs   12 eggs   6 eggs

He wants

at least 10 boxes of 20 eggs

at least 15 boxes of 12 eggs

at least 25 boxes of 6 eggs.

The farmer fills 54 boxes with the 580 eggs.

Show how he does this.

[5 marks]

Answer _____ boxes of 20 eggs

_____ boxes of 12 eggs

_____ boxes of 6 eggs

8

Turn over ▶

10 Megan says,

"If you add any three multiples of 10 the total must be

a multiple of 10

and

a multiple of 3"

Is she correct?
You **must** show your working.

[2 marks]

_____

_____

_____

_____

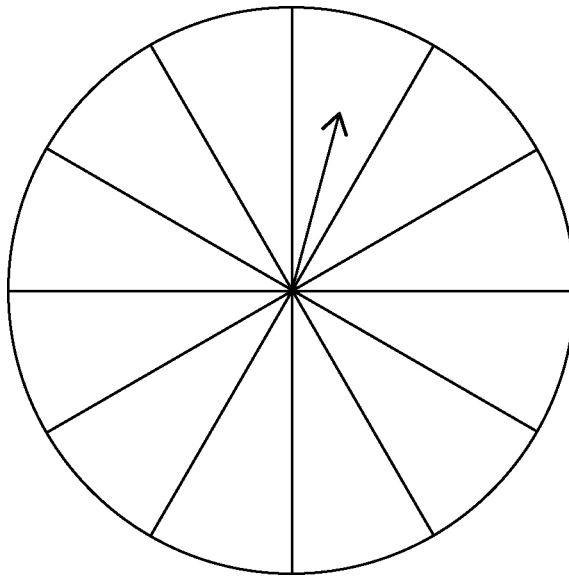Answer _____

11 A fair spinner has 12 equal sections.

Label each section A, B, C or D so that when the arrow is spun,

the probability it lands on A is $\frac{1}{6}$

the probability it lands on B is **equal** to the probability it lands on C

the probability it lands on D is **double** the probability it lands on A.

[3 marks]

Turn over for the next question

5

12 $a - b = 5$

12 (a)   Work out the value of $2(a - b)$

[1 mark]

Answer _____

12 (b)   Work out the value of $7a - 7b$

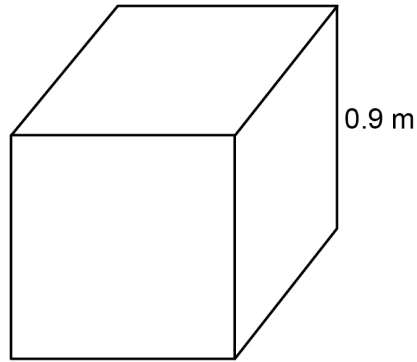**[1 mark]**

Answer _____

12 (c)   Work out the value of $b - a$

[1 mark]

Answer _____

13 A cube has edge length 0.9 metres.

0.9 m

Work out the **total** surface area of the cube.

Give your answer in **square centimetres**.

[3 marks]

Answer _____ cm^2

Turn over for the next question

6

Turn over ▶

14 £1700 is invested for 3 years at 4% per year **simple** interest.
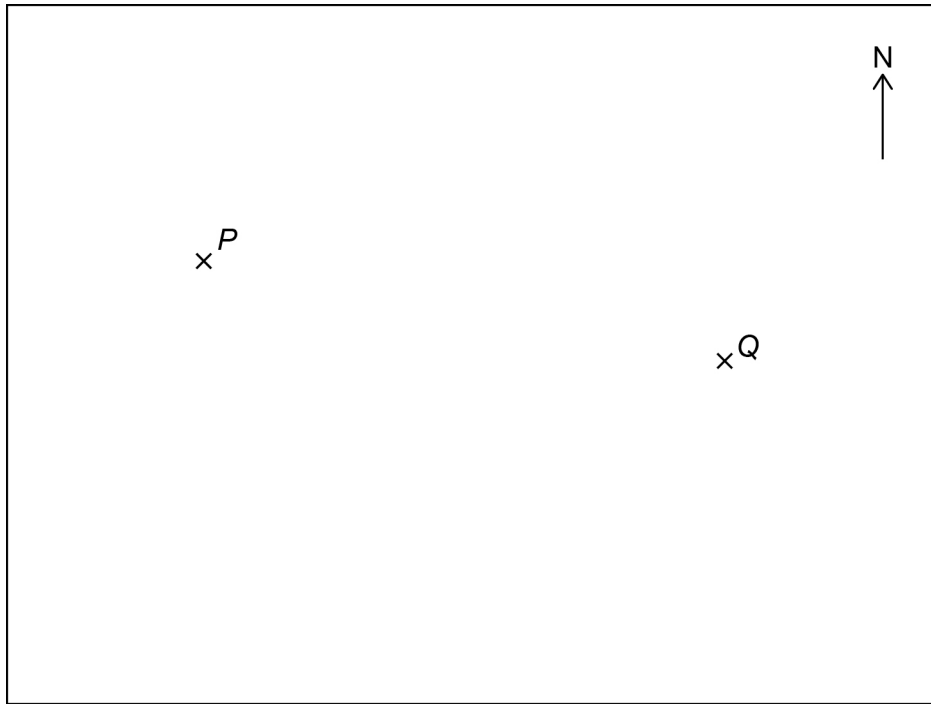
Work out the total interest.

[3 marks]

Answer £ _____

15 Here is a map showing two towns, *P* and *Q*.

Scale: 1 cm represents 50 km

15 (a) Work out the **actual** distance between towns *P* and *Q*.

[2 marks]

Answer _____ km

15 (b) Town *R* is 200 km due South of town *P*.

Mark *R* on the map.

[2 marks]

Turn over ▶

16 A train has 1 first-class carriage and 6 standard carriages.

The first-class carriage has 64 seats.

$\frac{3}{8}$ are being used.

Each standard carriage has 78 seats.

$\frac{7}{13}$ in each carriage are being used.

Are **more than** half the seats on the train being used?

You **must** show your working.

[5 marks]

_____

_____

_____

_____

_____

_____

_____

_____

_____

Answer _____

17   Circle the equation which has the solution $x = 6$

[1 mark]

$$x - 3 = \frac{x}{2} \qquad x = \frac{3 + x}{2} \qquad 3x = 36 \qquad \frac{x}{6} = 0$$

18 x is greater than 5 **and** less than or equal to 9

Circle the inequality that shows this.

[1 mark]

$$5 \leqslant x < 9 \qquad 5 > x \geqslant 9 \qquad 5 \leqslant x > 9 \qquad 5 < x \leqslant 9$$

Turn over for the next question

7

Turn over ▶

19 The following data comes from a large sample survey of the audience at a concert.

	Percentage	Mean age (years)	Age range (years)
Male	17%	20.3	6
Female	83%	25.7	28

Make **three** comparisons of males and females at the concert.
Use the headings given.

[3 marks]

Proportion of the audience _____

_____

_____

Average age _____

_____

_____

Spread of ages _____

_____

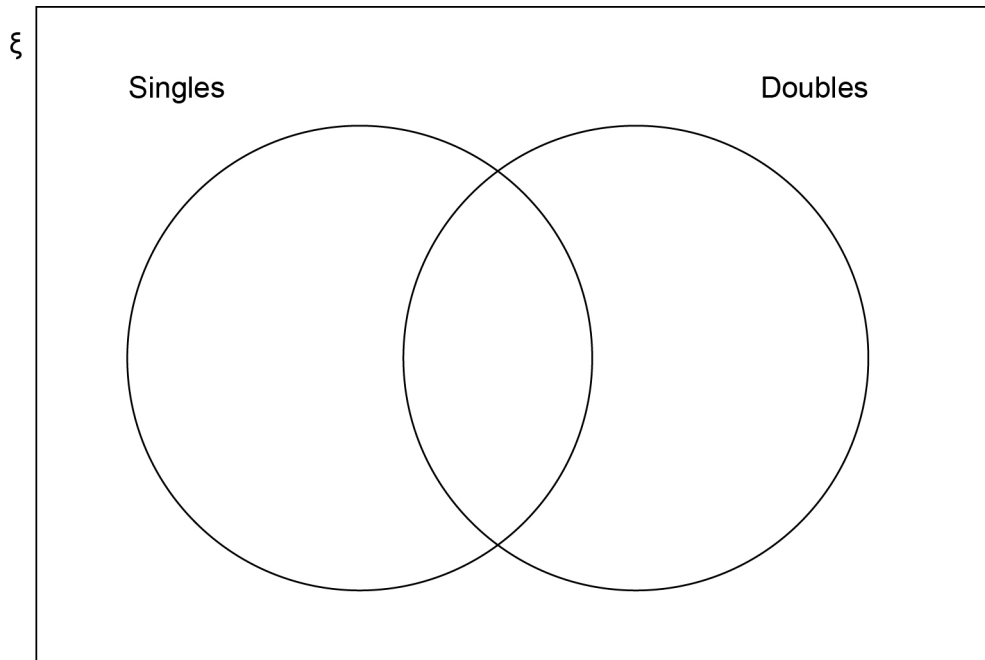**20** In a tennis tournament,

98 players took part in the singles only

34 players took part in the doubles only

twice as many players took part in the singles as took part in the doubles.

How many players took part in both the singles **and** the doubles?
You may use the Venn diagram to help you.

[4 marks]

ξ

Singles   Doubles

Answer _____

Turn over ▶

21 The distance by road from Newport to London is 140 miles.

Tom travels by coach from Newport to London.
The coach leaves Newport at 1.30 pm

21 (a) He assumes the coach will travel at an average speed of 50 mph

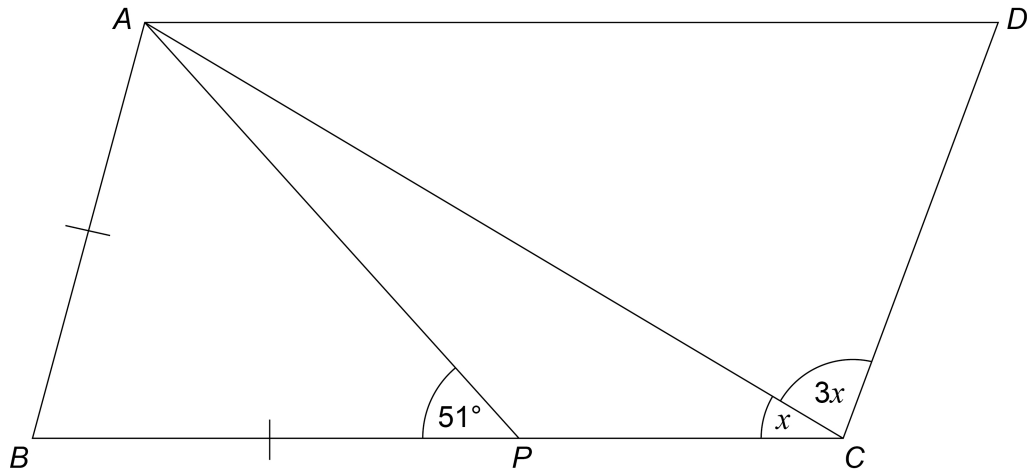Use his assumption to work out the arrival time in London.

[3 marks]

Answer _____

21 (b) In fact, the coach has a lower average speed.

How does this affect the arrival time?

[1 mark]

22 *ABCD* is a parallelogram.

AB = BP

Not drawn accurately

Work out the size of angle x.

[4 marks]

_____

_____

_____

_____

_____

_____

_____

_____

Answer _____ degrees

Turn over for the next question

8

Turn over ▶

23 Show that 268 can be written as the sum of a power of 3 and a square number.

[2 marks]

Answer _____

24 y is inversely proportional to x and k is a constant.

Circle the correct equation.

[1 mark]

$$y = \frac{k}{x} \qquad y = kx \qquad y = \frac{x}{k} \qquad y = x - k$$

25

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

Work out the **force** when the pressure is 24 N/m^2 and the area is 3 m^2
Circle your answer.

[1 mark]

0.125 N   8 N   27 N   72 N

Turn over for the next question
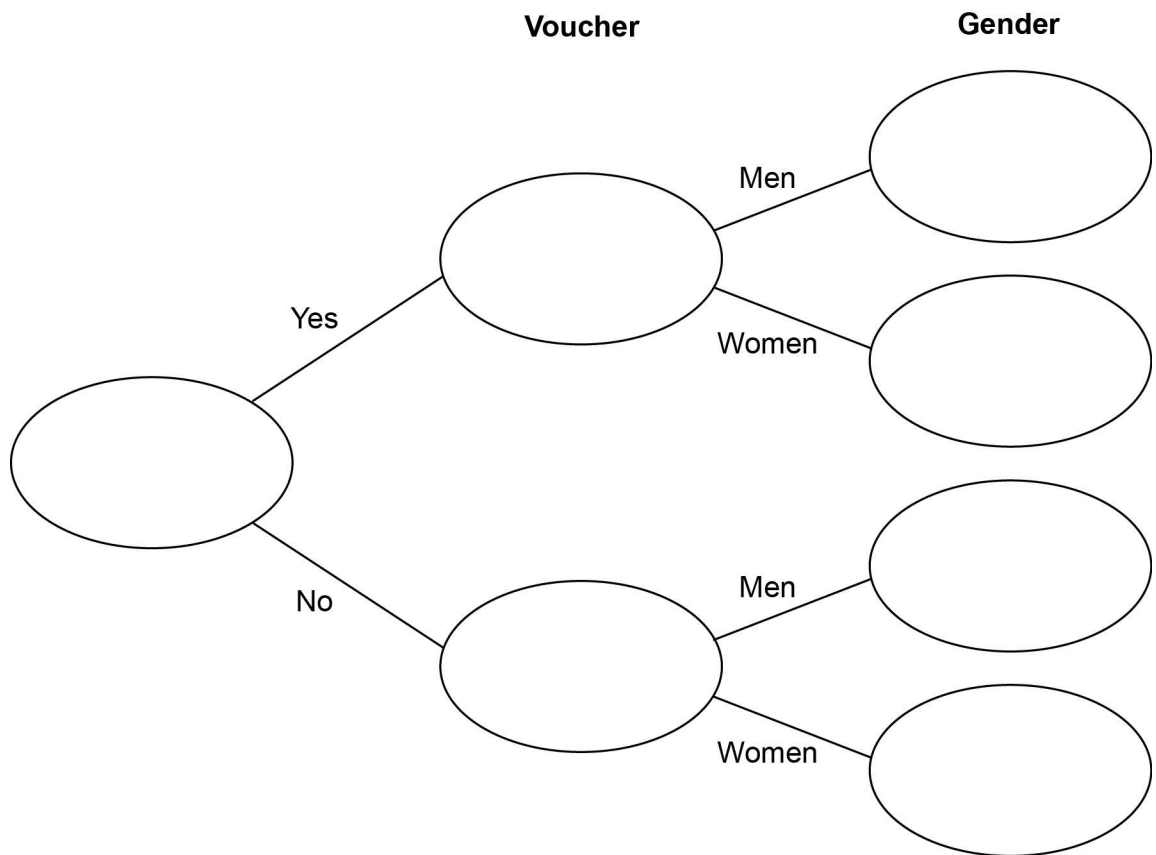
4

Turn over ▶

26   42 men and 38 women visit a restaurant.

       44 of these people have a voucher.

       Three times as many men as women do **not** have a voucher.

26 (a)   Complete the frequency tree.

[4 marks]

Voucher   **Gender**

```
                    ( )  Yes ─── Men   ( )
                   /          └── Women ( )
        ( )
                   \          ┌── Men   ( )
                    ( )  No ───┴── Women ( )
```

26 (b) A voucher takes **15% off** the bill.

After using the voucher, the bill for a meal is £27.20

How much was the bill before using the voucher?

[3 marks]

Answer £ _____

Turn over for the next question

7

Turn over ▶

IB/M/Nov17/8300/3F

27 (a) Rearrange $v = u + at$ to make t the subject of the formula.

[2 marks]

Answer _____

27 (b) Complete this table with consistent metric units.

[2 marks]

Distance	Time	Speed	Acceleration
m	s		

28 Multiply out and simplify $(x-8)^2$

[2 marks]

Answer _____

END OF QUESTIONS

6

There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED

There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED

There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED