AQA

Surname

Other Names

Centre Number

Candidate Number

Candidate Signature

GCSE
MATHEMATICS

F

Foundation Tier   **Paper 3 Calculator**

8300/3F

Wednesday 8 November 2017   **Morning**

Time allowed: 1 hour 30 minutes

For this paper you must have:
- **a calculator**
- **mathematical instruments.**

At the top of the page, write your surname and other names, your centre number, your candidate number and add your signature.

[Turn over]

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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 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.**

DO NOT TURN OVER UNTIL TOLD TO DO SO

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]

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

3   **Circle the decimal that is greater than $\dfrac{1}{5}$ and less than $\dfrac{1}{4}$ [1 mark]**

0.152   0.200   0.215   0.251

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 £ _____   7

[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 _____

**[Turn over]**

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 grid below. [3 marks]

   Take the length of the sides of each square to be 1 cm.
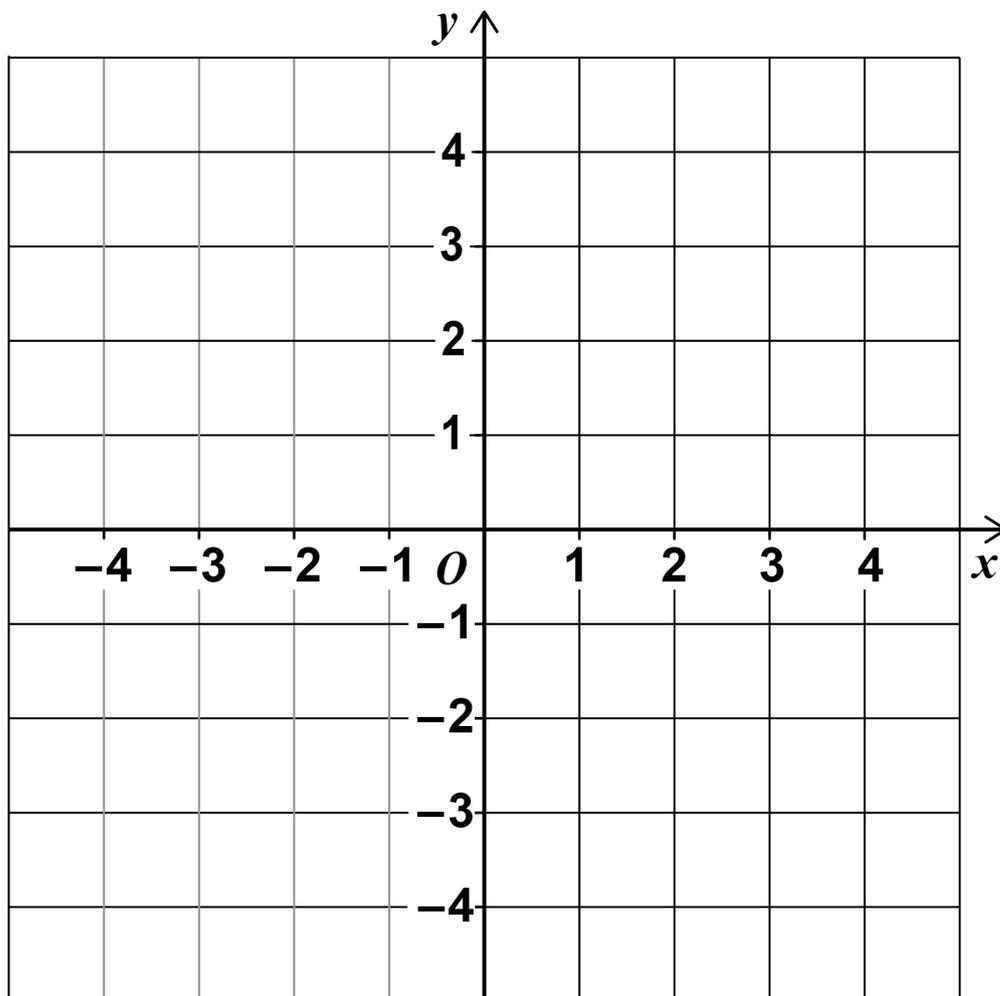
**7 (b) Work out the area of triangle *ABC*. [2 marks]**

Answer _____ cm^2 8

[Turn over]

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

Input   Output
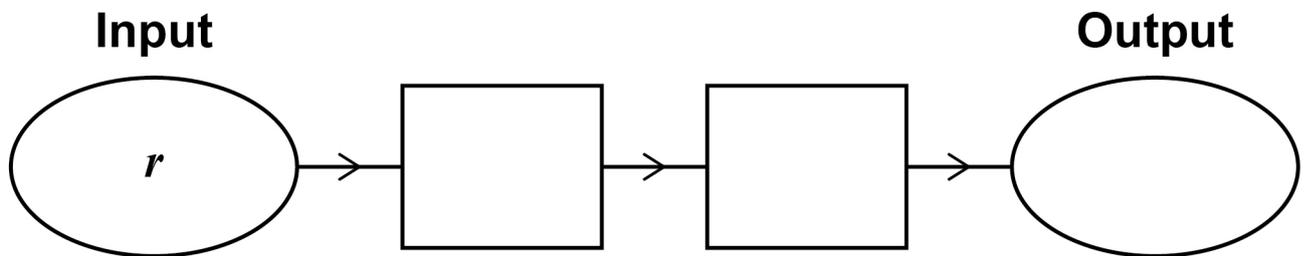
8 (b) Write down the output y in terms of x.   [1 mark]

Input   Output

x → +5 → ×3 → y

_____

_____
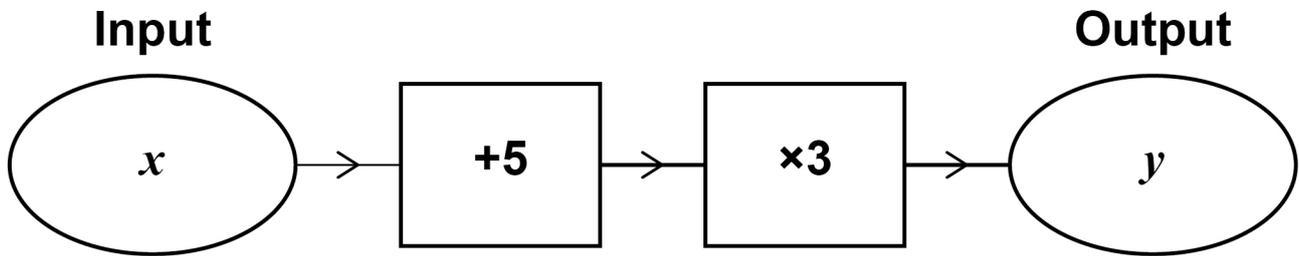
Answer _____

[Turn over]

9 A farmer has 580 eggs to put into boxes.
The boxes come in three sizes.
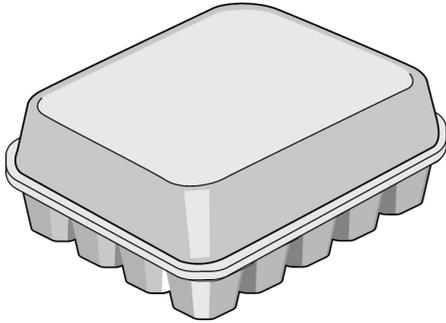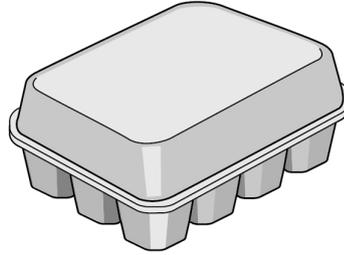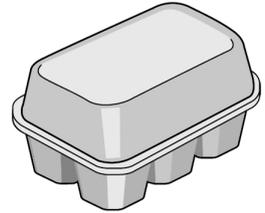
20 eggs   **12 eggs**   **6 eggs**

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 $\dfrac{1}{6}$

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]

5
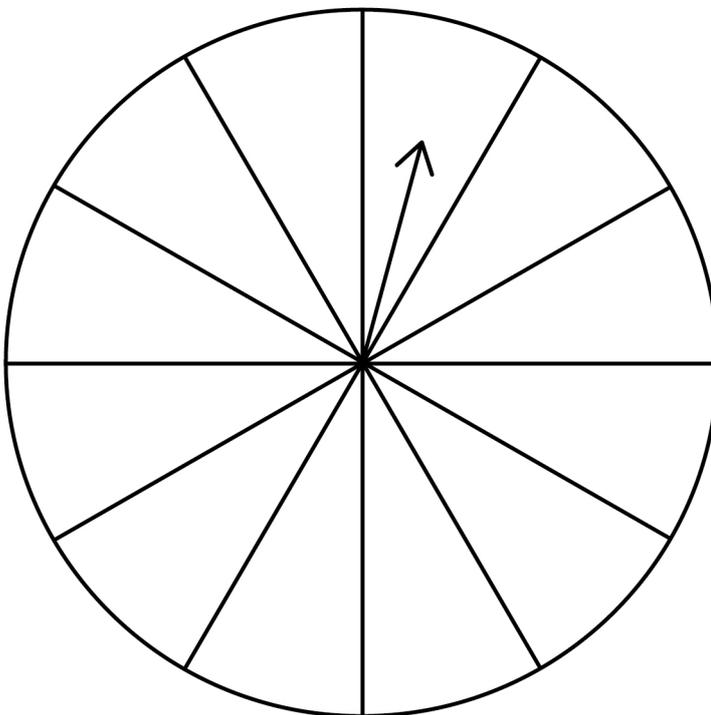
12 $a - b = 5$

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 _____

[Turn over]

13 **A cube has edge length 0.9 metres.**

0.9 m
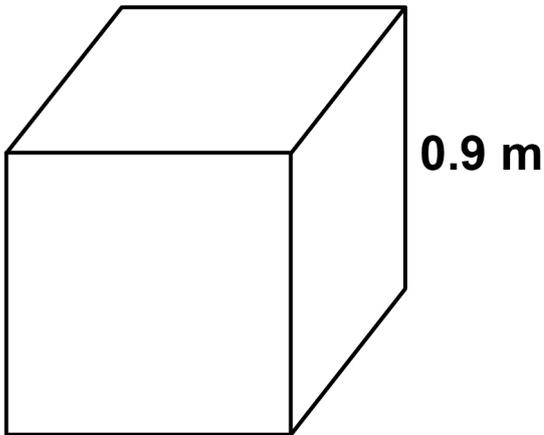
Work out the TOTAL surface area of the cube.

Give your answer in SQUARE CENTIMETRES.
[3 marks]

Answer _____ cm^2

[Turn over]

BLANK PAGE

14   **£1700 is invested for 3 years at 4% per year SIMPLE interest.**

Work out the total interest. [3 marks]

_____

_____

_____

_____

_____

_____

_____

Answer £ _____

[Turn over]

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

Take this line to represent a distance of 50 km ———
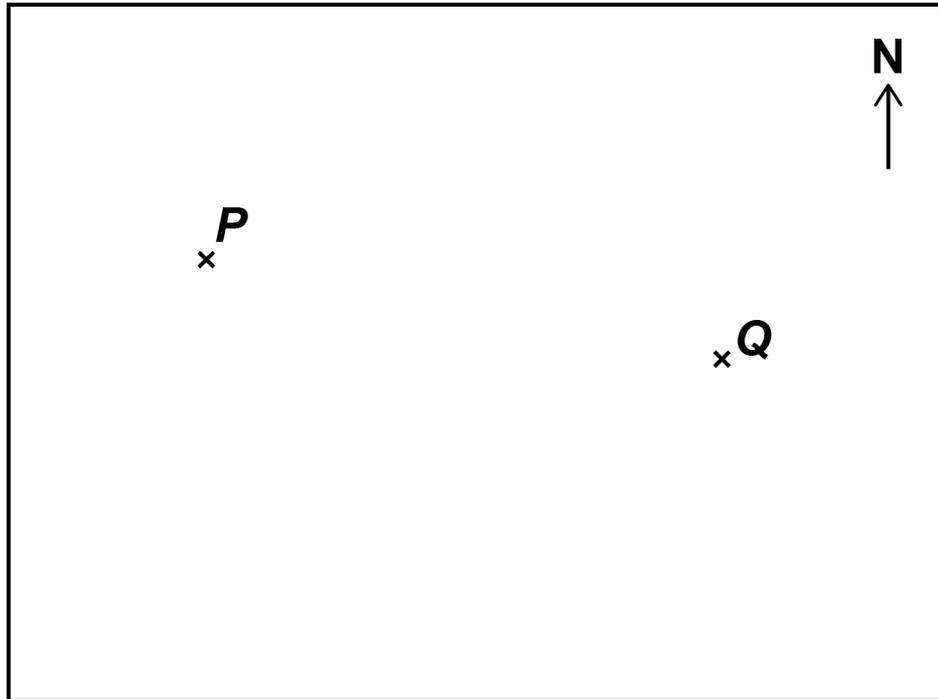
15 (a) Work out the ACTUAL distance between towns *P* and *Q*. [2 marks]

_____

_____

_____

_____

_____

Answer _____ km

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

Mark *R* on the map. [2 marks]

7

[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]

_____

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Answer _____

[Turn over]

BLANK PAGE

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]

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

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

[Turn over]

7

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 _____

_____

_____

_____

_____

[Turn over]

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 _____

7

[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]**

_____

_____

_____

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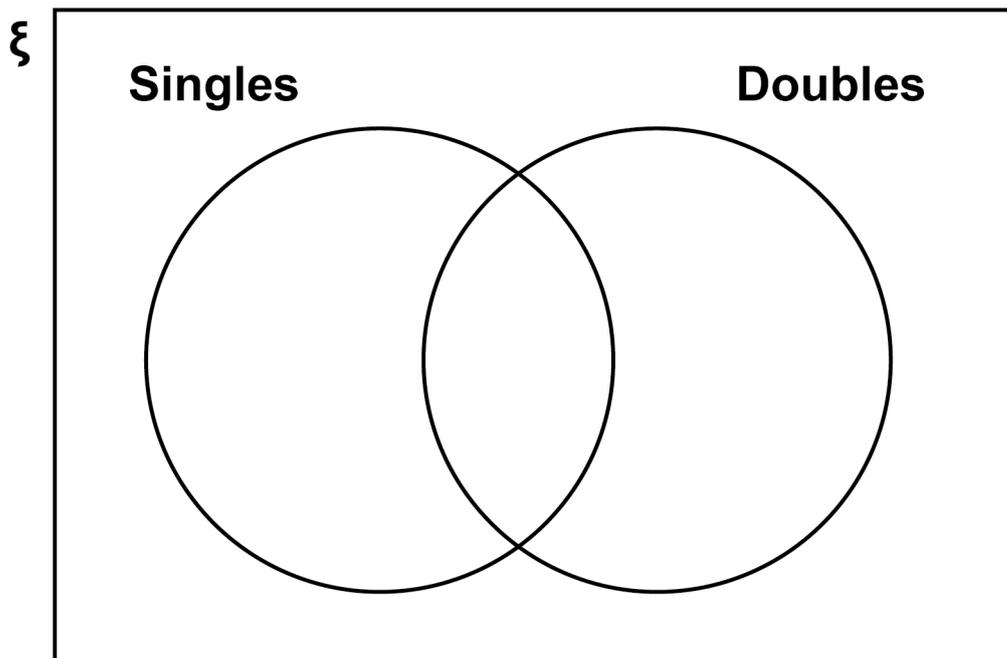
Answer _____

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

How does this affect the arrival time? [1 mark]

_____

_____

_____

[Turn over]

22 *ABCD* is a parallelogram.

It is not drawn accurately.

AB = BP

A   D

51°   3x
x

B   P   C
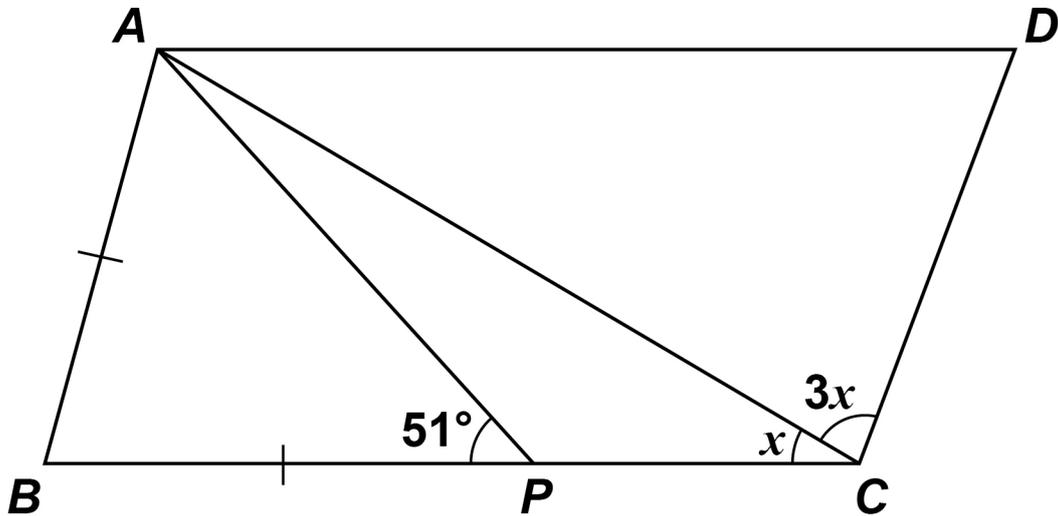
Work out the size of angle x. [4 marks]

_____

_____

_____

_____

_____

_____

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_____

_____

_____

Answer _____ **degrees** | **8** |

[Turn over]

23 **Show that 268 can be written as the sum of a power of 3 and a square number.   [2 marks]**

_____

_____

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_____

_____

Answer _____

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

      Circle the correct equation. [1 mark]

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

25   pressure $= \dfrac{\text{force}}{\text{area}}$

      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

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]

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 £ _____

7

[Turn over]
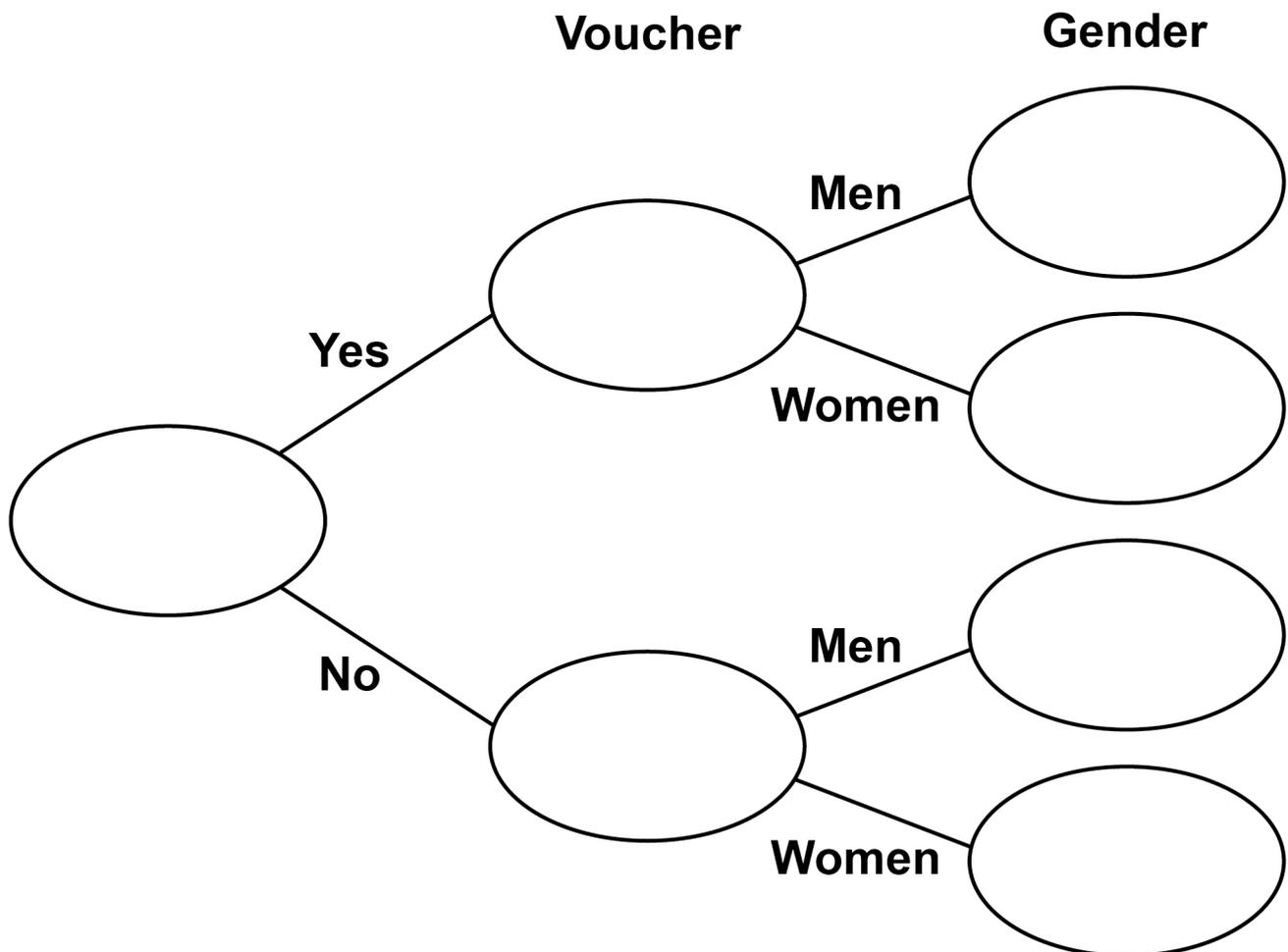
27 (a) Rearrange $v = u + at$ to make t the subject of the formula. [2 marks]

_____

_____

_____

_____

_____

_____

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 _____   6

END OF QUESTIONS

There are no questions printed on this page