

8300

GCSE MATHEMATICS

Foundation tier – Questions by Topic

Probability

Frequency trees

v1.0

Name _____

Materials

For this paper you must have:

- Mathematical instruments

Information

- The marks for questions are shown in brackets

Advice

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

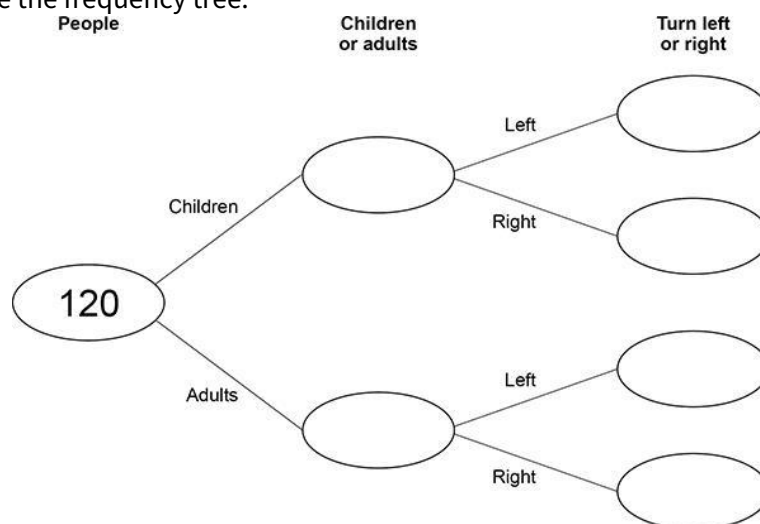
For questions 1 to 3 you must **NOT** use a calculator.



Q1.

120 people visit a maze.
80 are children, the rest are adults.
At the start of the maze you can turn left or right.
45 children turn left.
75 people in total turn left.

(a) Complete the frequency tree.



(4)

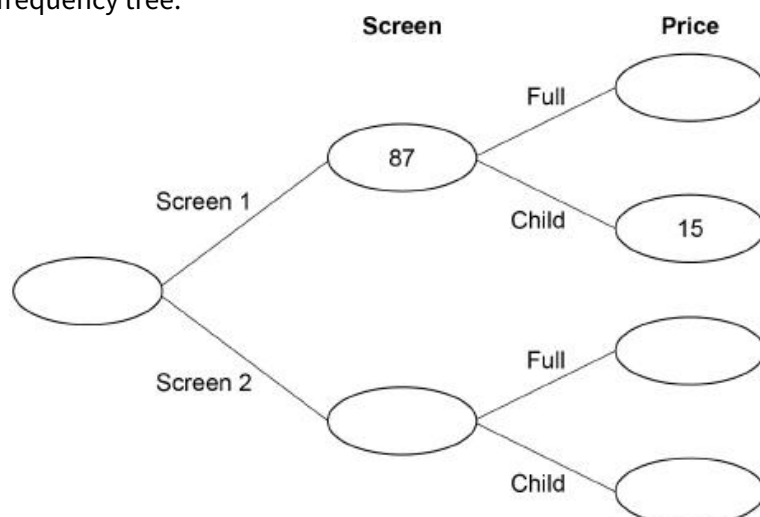
(b) What fraction of the **children** turn left?
Give your answer in its simplest form.

(2)

(Total 6 marks)

Q2.

At a cinema, films are shown on Screen 1 and Screen 2
Customers pay full price or child price.
There are three times as many customers in Screen 2 as Screen 1
68 customers paid child price.
Complete the frequency tree.



(Total 5 marks)

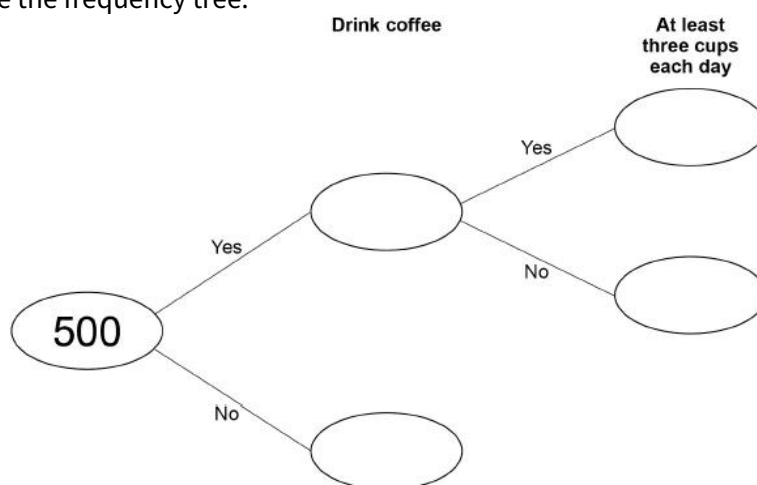
Q3.

500 people are asked if they drink coffee.

$\frac{9}{10}$ say Yes.

20% of the people who say Yes drink at least three cups each day.

(a) Complete the frequency tree.



(4)

(b) What fraction of the 500 people drink at least three cups of coffee each day?
Give your answer in its simplest form.

(2)

(Total 6 marks)

For the rest of the questions, you may use a calculator.



Q4.

8400 fans go to a rugby match.

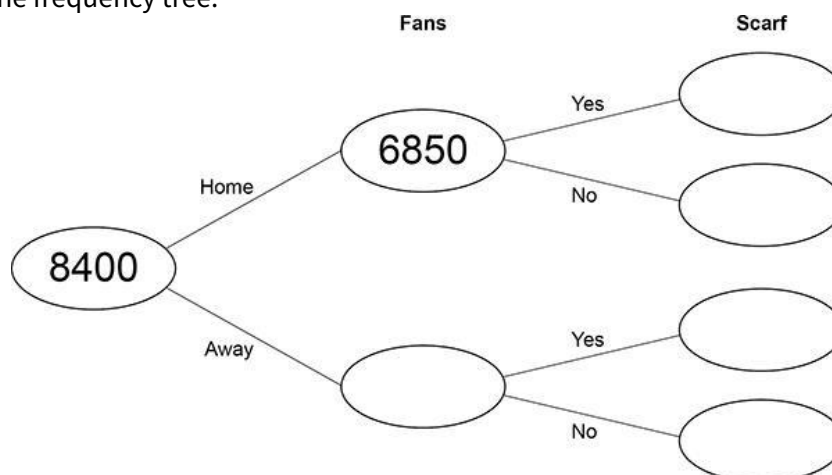
6850 of the fans support the **Home** team.

The remaining fans support the **Away** team.

20% of the **Home** fans wear a scarf.

2319 of all the fans wear a scarf.

Complete the frequency tree.



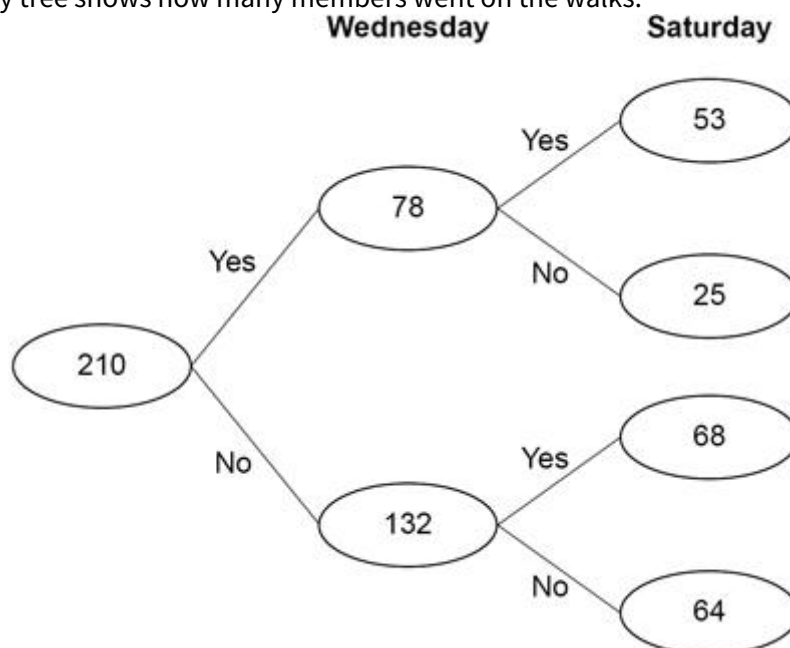
(Total 5 marks)

Q5.

A walking group has 210 members.

One week, the group organised a walk on Wednesday and a walk on Saturday.

The frequency tree shows how many members went on the walks.

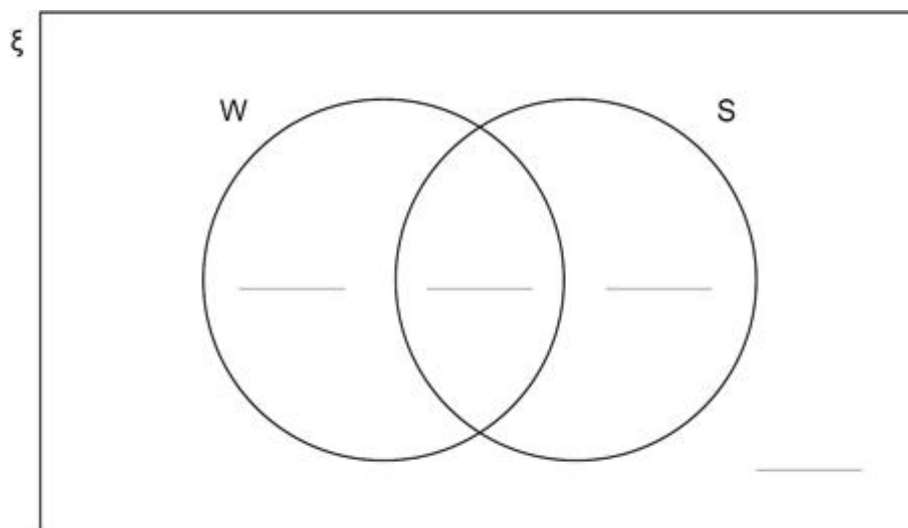


Show the information on the Venn diagram.

ξ = 210 members

W = members who went on the Wednesday walk

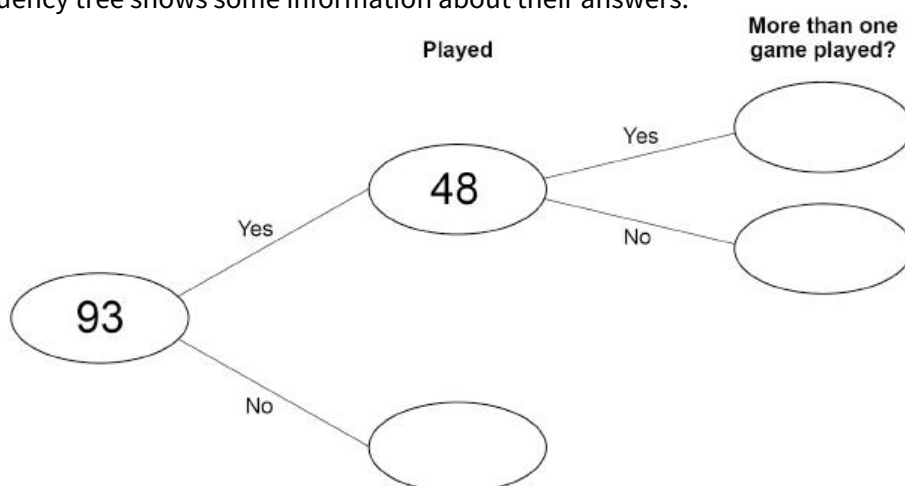
S = members who went on the Saturday walk



(Total 4 marks)

Q6.

93 people were asked if they played online games one day.
The frequency tree shows some information about their answers.



- (a) 75% of the people who answered Yes played one game.
Complete the frequency tree.

- (b) One of the 93 people is chosen at random.

(3)

$P(\text{used social media})$ is **more than** 0.68

What is the **smallest** possible number of people who used social media?

(2)

(Total 5 marks)

Q7.

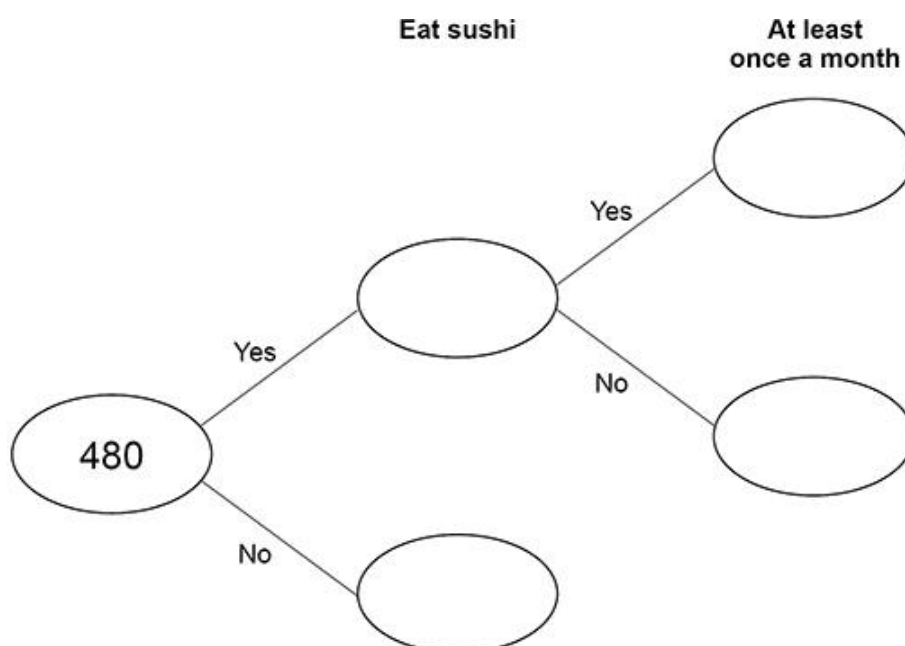
480 people are asked if they eat sushi.

20% say Yes.

$\frac{2}{3}$

of the people who say Yes eat sushi at least once a month.

Complete the frequency tree.

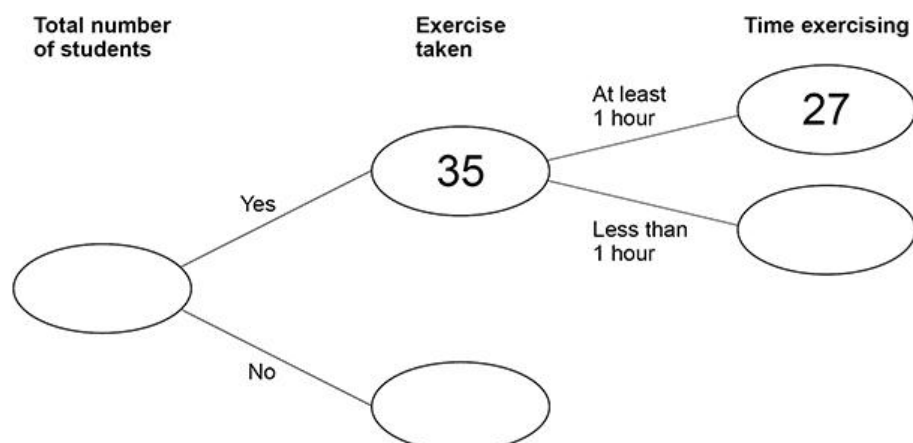


(Total 4 marks)

Q8.

Some students were asked about their daily exercise.

- (a) 12 **more** students answered Yes than answered No.
Complete the frequency tree.



(3)

- (b) One of the 35 students who answered Yes is chosen at random.
What is the probability that they exercise for at least 1 hour?

(1)

(Total 4 marks)

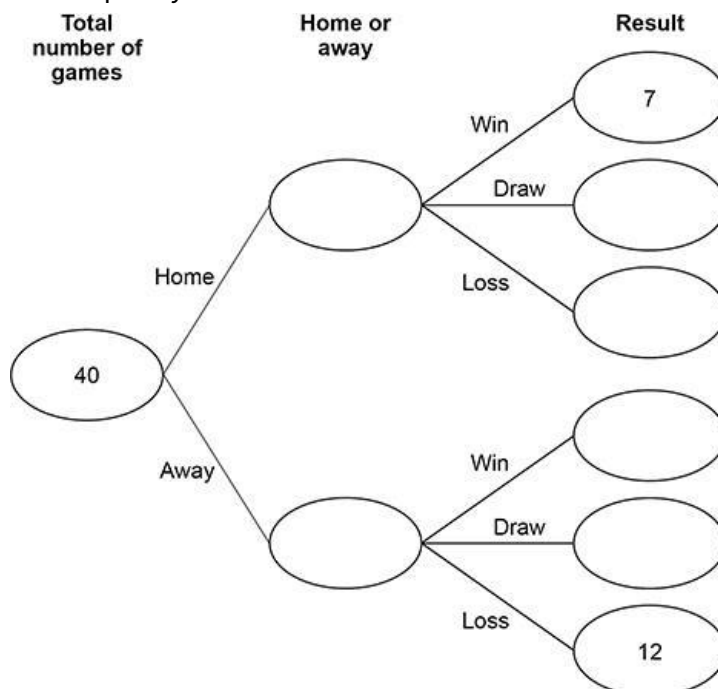
Q9.

A sports team played 40 games.
Half were home games and half were away games.
Each game was a win, a draw or a loss.

Of the **home** games, $\frac{2}{5}$ were losses.

Of the **away** games, $\frac{1}{10}$ were wins.

- (a) Complete the frequency tree.



(4)

- (b) The team gets
6 points for a win
3 points for a draw
0 points for a loss.
Work out the **total** number of points that the team got.

(2)

(Total 6 marks)

Q10.

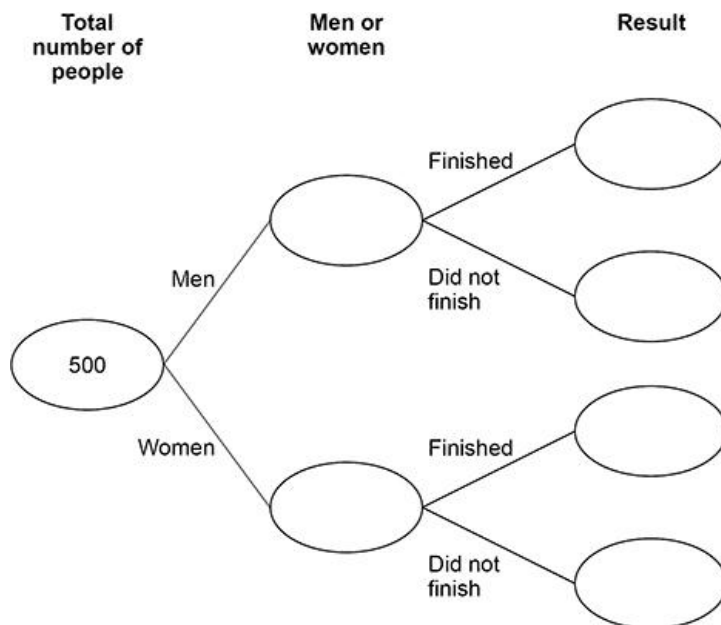
500 people started a race.

280 were men and the rest were women.

80% of the men finished the race.

30 women did **not** finish the race.

Complete the frequency tree.



(Total 5 marks)

Q11.

56 customers pay for satellite television.

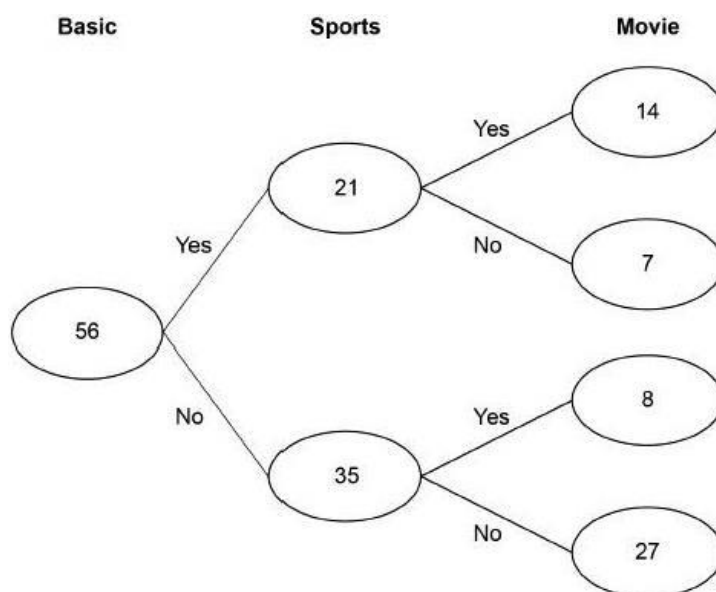
They **all** have the Basic package for £24.50 per month.

Some also have

the Sports package for £27.50 extra per month

the Movie package for £18 extra per month.

The frequency tree shows the number of customers with each package.



In total, how much per month do the 56 customers pay?

(Total 4 marks)

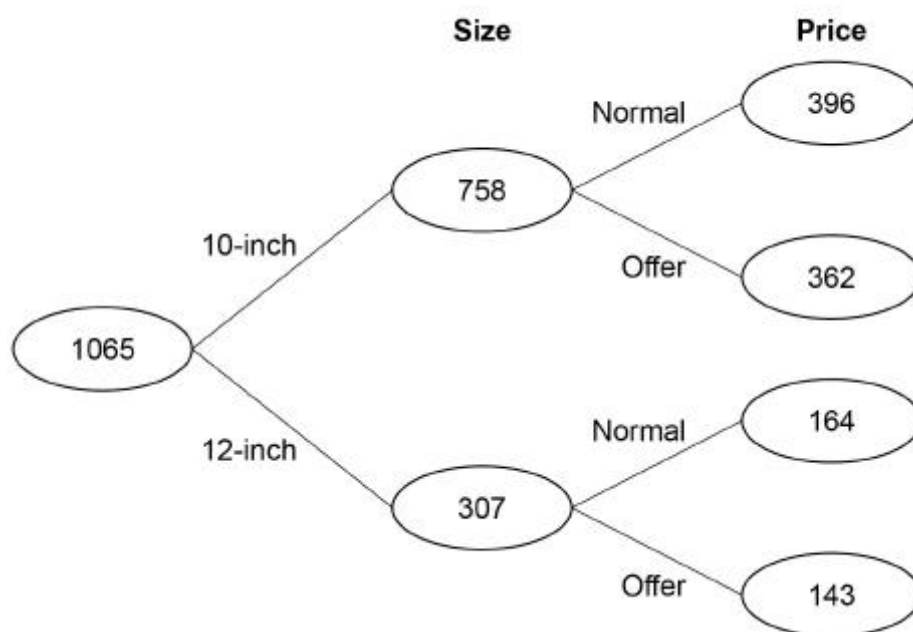
Q12.

A takeaway sells 10-inch pizzas and 12-inch pizzas.
Here is some information about the numbers sold in two weeks.

Week 1

10-inch	512
12-inch	231
Total	743

Week 2



- (a) In each week a proportion of the pizzas sold were 10-inch.
In which week was this proportion greater?
Show working to support your answer.

(2)

- (b) The table shows the profit or loss the takeaway makes on each pizza.

	Normal price	Offer price
10-inch	£3.74 profit	51p loss
12-inch	£5.29 profit	4p loss

In week 1 the total profit was £1895.55

At the end of week 1 the takeaway spent £175 on adverts.

Was the **increase** in profit in week 2 more than the cost of the adverts?

You **must** show your working.

(4)

(Total 6 marks)

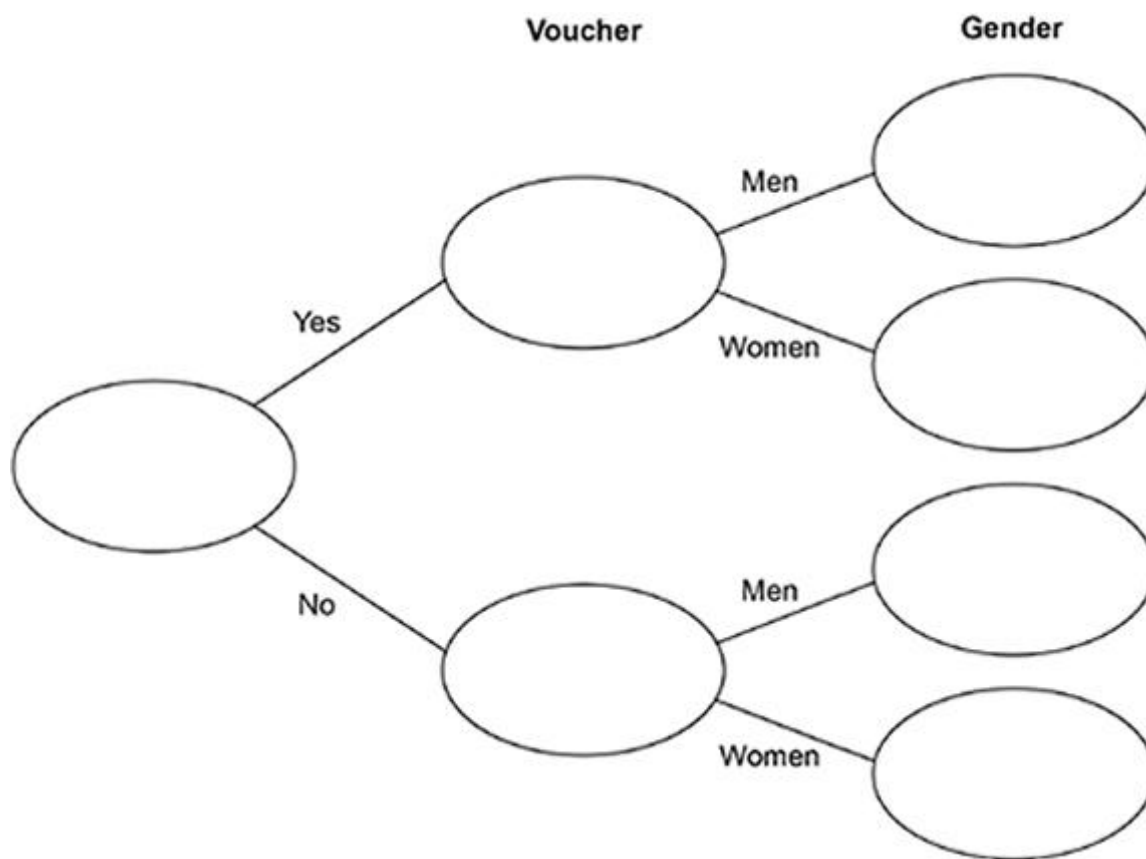
Q13.

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.

- (a) Complete the frequency tree.



(4)

- (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)

(Total 7 marks)