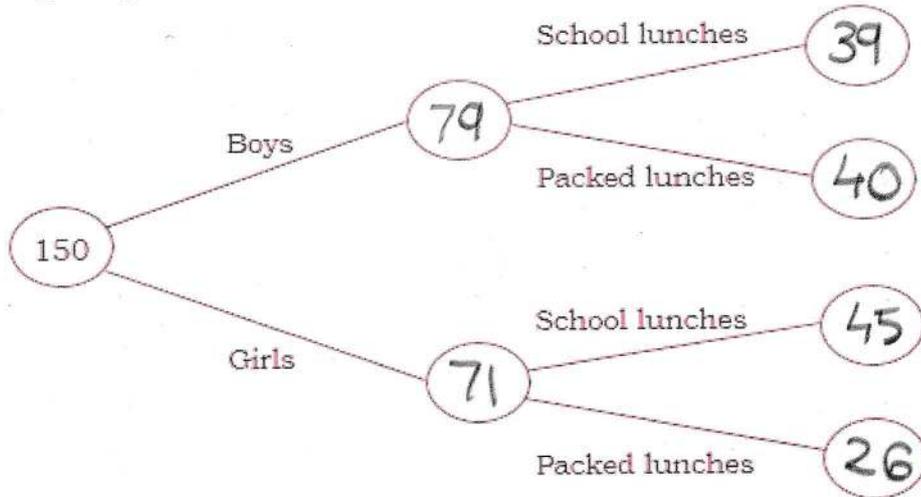# FREQUENCY TREES – PRACTICE QUESTIONS

1.

There are 150 pupils in Year 10.

Pupils either have school lunches or packed lunches.

79 of the pupils are boys.

45 girls have school lunches and 39 boys have school lunches.

Complete the frequency tree.

```
                                      School lunches    39
                          79
              Boys                    Packed lunches     40
150
                                      School lunches     45
              Girls       71
                                      Packed lunches     26
```
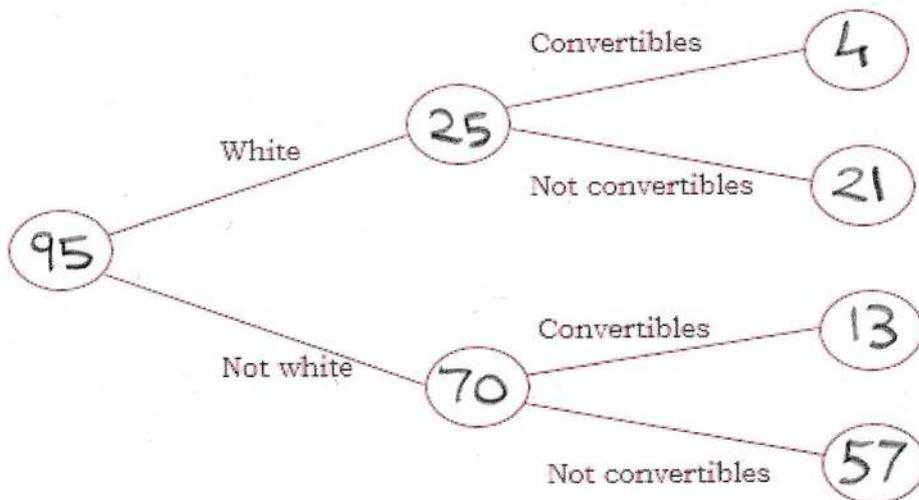
2.

There are 95 cars in a car park.

25 of the cars are white.

13 of the non-white cars are convertibles and 21 of the white cars are not convertibles.

(a) Complete the frequency tree.

```
                                      Convertibles        4
                          25
              White                   Not convertibles    21
95
                                      Convertibles        13
              Not white   70
                                      Not convertibles    57
```

(b) A car is picked at random. What is the probability that the car picked is a white convertible?
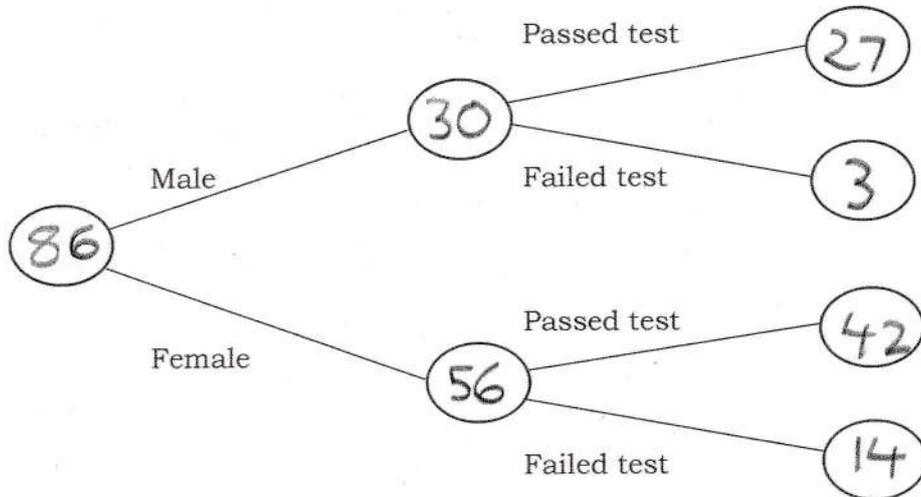
$$\frac{4}{95}$$

3.

86 people took driving tests last month.

30 of the people were male.

90% of the males passed their test, and 75% of the females passed their test.

(a) Complete the frequency tree.

```
                                    Passed test      (27)
                          (30)
              Male                  Failed test      (3)
      (86)
              Female                Passed test      (42)
                          (56)
                                    Failed test      (14)
```

90% of 30 = 27
75% of 56 = 42

(b) How many of the 86 people failed their test?
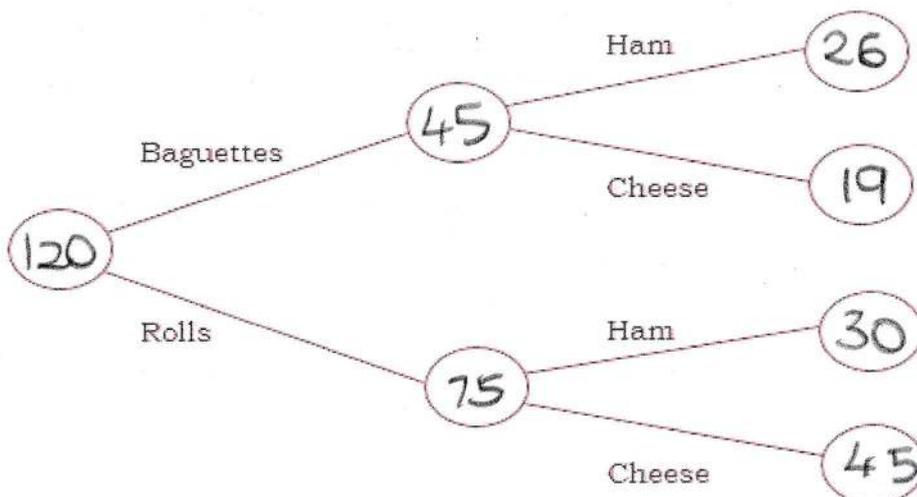
14 + 3 = <u>17</u>

4.

A café sells baguettes and rolls in two types – ham and cheese.

Last week, they sold 26 ham baguettes and 45 cheese rolls.

75 of the total 120 items sold were rolls.

Complete the frequency tree.

```
                                    Ham      (26)
                          (45)
              Baguettes             Cheese   (19)
      (120)
              Rolls                 Ham      (30)
                          (75)
                                    Cheese   (45)
```

5.

A group of 40 friends went on an activities trip.
The group chose either kayaking or snorkelling, and either archery or fencing.
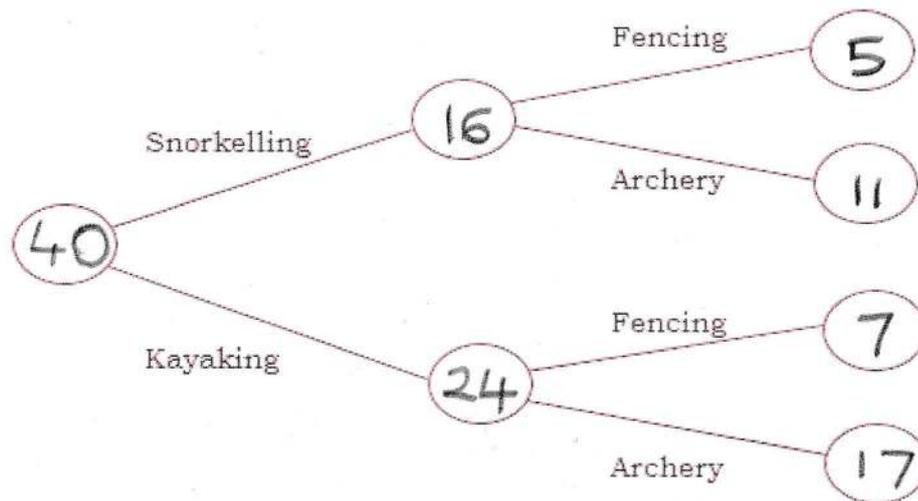30% of the group chose fencing.
40% of the group chose snorkelling.
11 people chose snorkelling and archery.

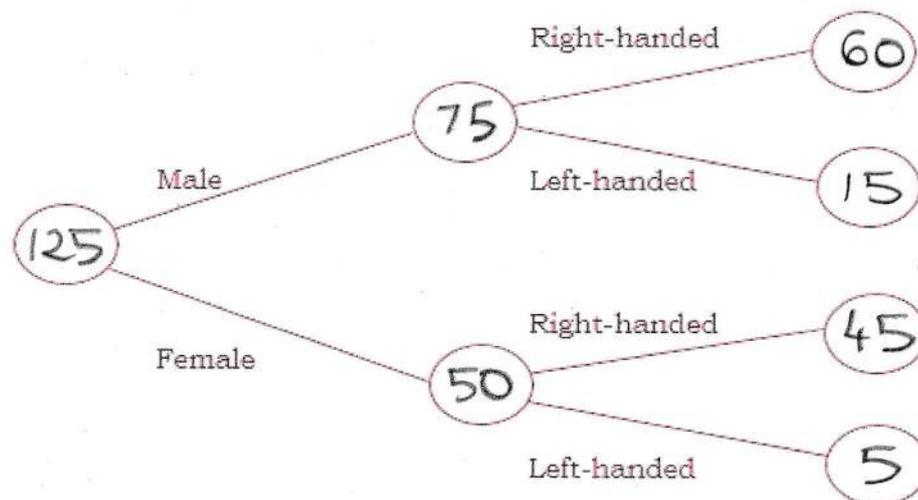Complete the frequency tree.

Fencing = 30% of 40 = 12
Snorkelling = 40% of 40 = 16

6.

There are 125 players at a tennis club.
Two fifths of the players are female.
5 of the female players are left-handed.
There are three times as many male left-handed players than there are female left-handed players.

Complete the frequency tree.

$\frac{2}{5}$ of 125 = 50

7.

Archie wanted to know whether he should travel to work by bus or train.
He made note of the number of times he was late to work on 85 days last year.
Archie travelled by bus on 35 days.
He was late travelling by bus on 7 days and on time travelling by train on 41 days.

(a) Complete the frequency tree below.

Bus — (35) — Late — (7)
           — On time — (28)
(85)
Train — (50) — Late — (9)
            — On time — (41)
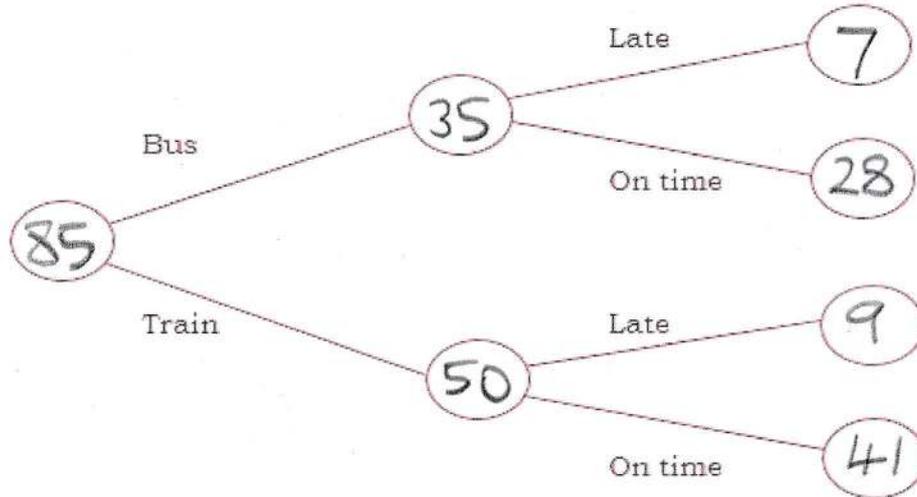
(b) Compare the percentage of days Archie was late travelling by bus with the percentage of days Archie was late travelling by train.
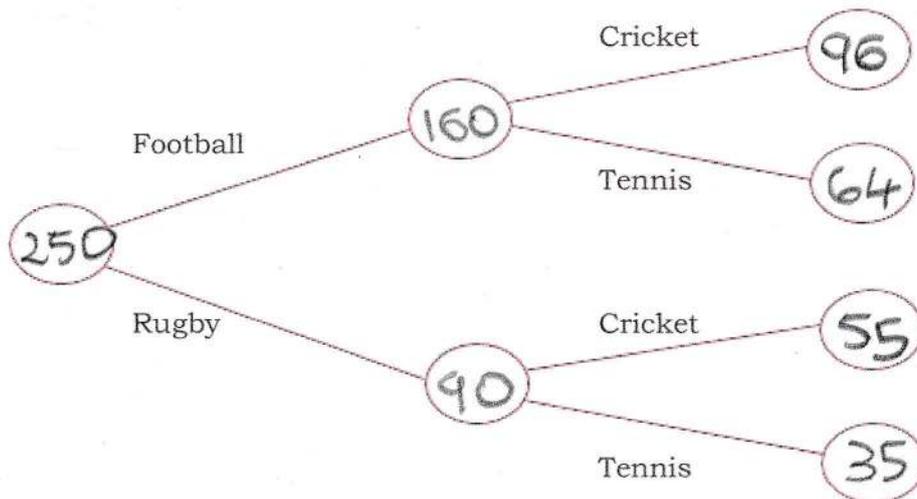
Bus = 7/35 = 20%.
Train = 9/50 = 18%.

The percentage of days Archie was late by bus was larger than by train.

8.

250 students can play rugby or football, and cricket or tennis.
160 play football.
35 play tennis and rugby.
60% of the students who play football play cricket.

Complete the frequency tree below.

Football — (160) — Cricket — (96)
                 — Tennis — (64)
(250)
Rugby — (90) — Cricket — (55)
            — Tennis — (35)

60% of 160 = 96

9.
A hospital employs doctors and nurses, on full-time and part-time contracts.
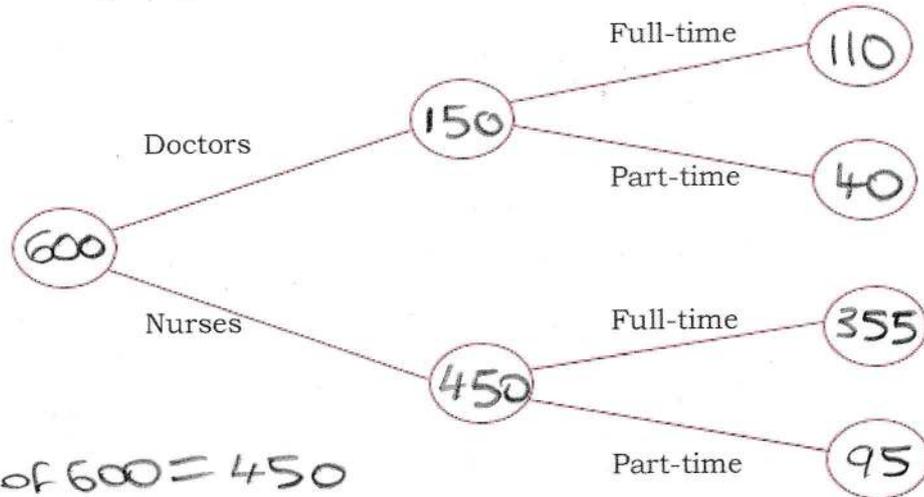The hospital employs 600 staff in total.
75% of the staff at the hospital are nurses.
The hospital employs 95 part-time nurses.
The hospital employs 70 more full-time doctors than part-time doctors.

(a) Complete the frequency tree below.

Full-time — (110)

(150)

Doctors

Part-time — (40)

(600)

Nurses

Full-time — (355)

(450)

75% of 600 = 450   Part-time — (95)

(b) How many part-time staff do the hospital employ?

$$40 + 95 = \underline{135}$$

10.
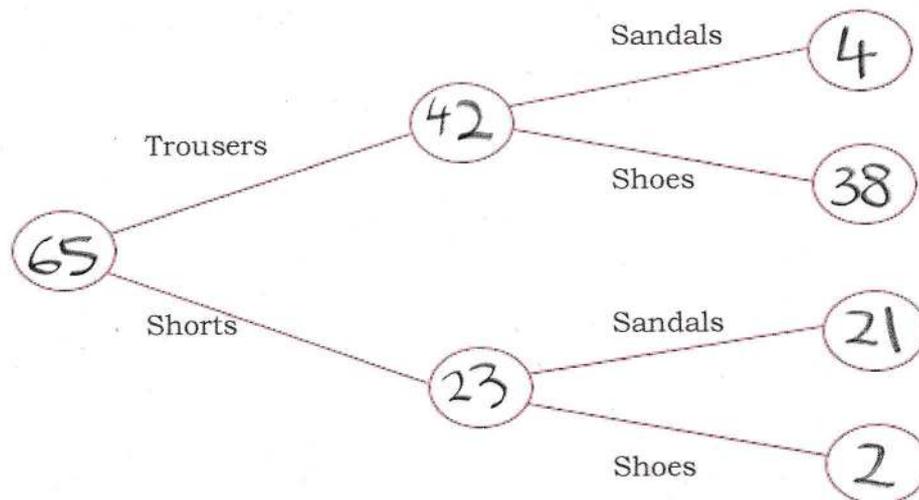A group of people are standing on a train platform.
They are wearing either shorts or trousers, and either shoes or sandals.
There are 23 people wearing shorts.
There are 40 people wearing shoes.
4 of the 42 people wearing trousers are wearing sandals.

How many people are wearing sandals?

Sandals — (4)

(42)

Trousers

Shoes — (38)

(65)

Shorts

Sandals — (21)

(23)

Shoes — (2)

11.
A swimming club entered some of its members into a swimming gala.
The swimmers swam either breast stroke or freestyle.
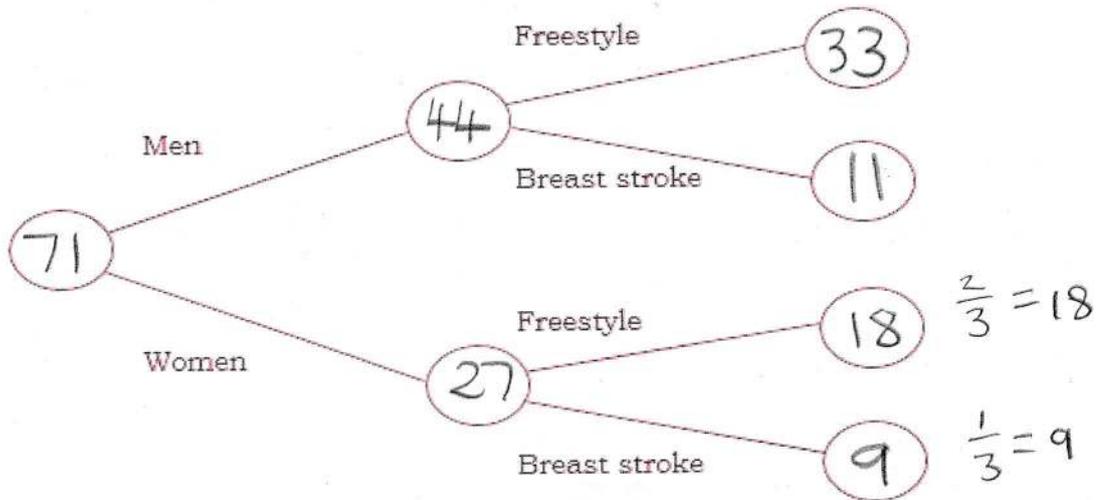44 men were entered in the gala.
9 women swam breast stroke.
A quarter of the men swam breast stroke.
Two thirds of the women swam freestyle.

(a) Complete the frequency tree.

$\frac{1}{4}$ of $44 = 11$

Freestyle — (33)

Men — (44)

Breast stroke — (11)

(71)

Freestyle — (18) $\frac{2}{3} = 18$

Women — (27)

Breast stroke — (9) $\frac{1}{3} = 9$

(b) How many swimmers did the club send to the gala in total?

71

12.
A jewellery shop sells rings and necklaces.
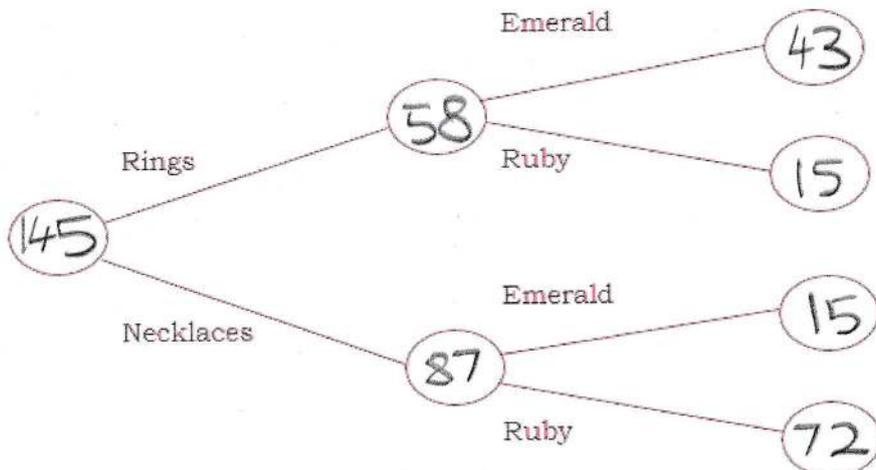All of its items contain either rubies or emeralds.
The shop has 145 items in stock in total.
60% of the items contain rubies.
There are 43 emerald rings in stock.
The number of emerald necklaces is the same as the number of ruby rings.

Complete the frequency tree.

Emerald — (43)

(58)

Rings   Ruby — (15)

(145)

Emerald — (15)

Necklaces — (87)

Ruby — (72)

Rubies $= 60\%$ of $145 = 87$ $87 + 43 = 130$
$145 - 130 = 15$