

GCSE MATHS • GRADE 3

MATHS



MODEL ANSWERS

FREQUENCY TREES

SCORE

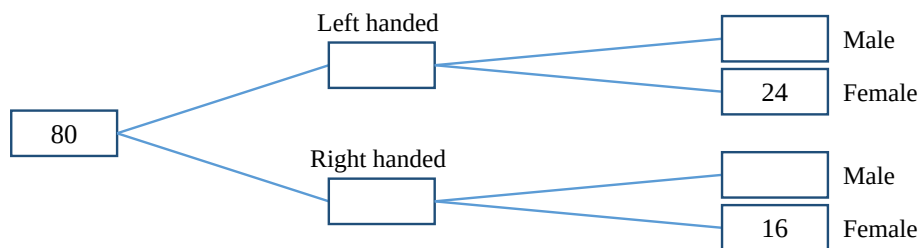
/92

PERCENTAGE

%

STEM UP

- 1 80 people were surveyed. Each person is left handed or right handed. 54 of the 80 people are left handed.
(a) Use this information to complete the frequency tree.

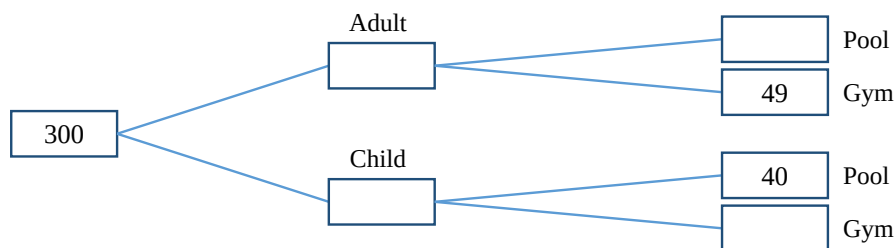


Each pair of branches adds to its box
first level adds to 80

Left handed 54 (Male 30, Female 24);
Right handed 26 (Male 10, Female 16)

1 / 1

- 2 300 members of a leisure centre were asked if they use the pool or the gym. 75% of the members who are adults use the pool.
(a) Use this information to complete the frequency tree.

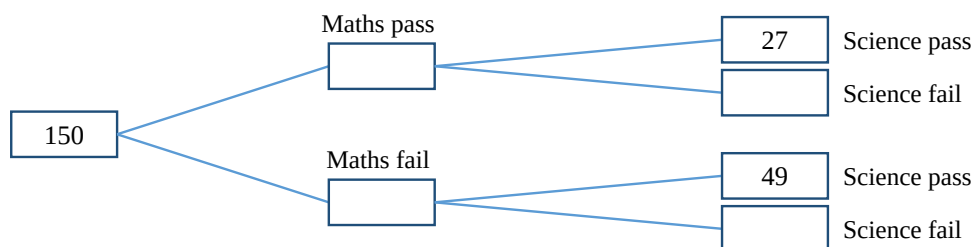


Each pair of branches adds to its box
first level adds to 300

Adult 196 (Pool 147, Gym 49); Child 104
(Pool 40, Gym 64)

1 / 1

- 3 150 students sat a maths paper and a science paper. 33 of the 60 students who passed maths failed science.
(a) Use this information to complete the frequency tree.

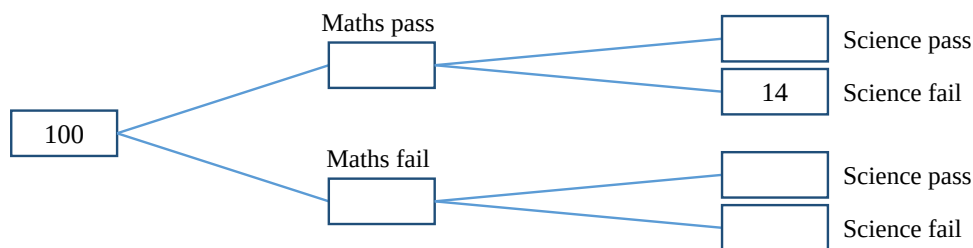


Each pair of branches adds to its box
first level adds to 150

Pass 60 (Pass 27, Fail 33); Fail 90 (Pass
49, Fail 41)

1 / 1

- 4 100 students sat a maths paper and a science paper. 60% of the students who passed maths passed science. 45 students who failed maths also failed science.
(a) Use this information to complete the frequency tree.

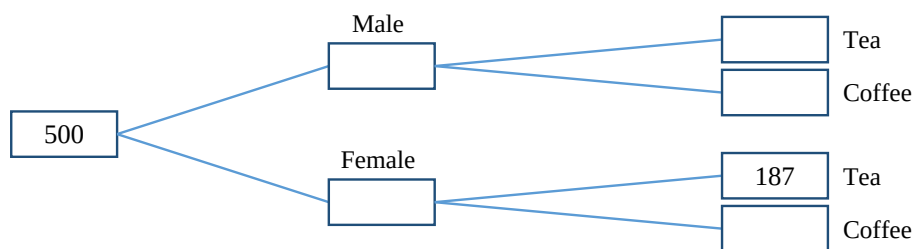


Each pair of branches adds to its box
first level adds to 100

Pass 35 (Pass 21, Fail 14); Fail 65 (Pass 20, Fail 45)

1 / 1

- 5 500 people were asked if they prefer tea or coffee. $\frac{2}{5}$ of the people who were male preferred coffee. 120 of the 500 people were male.
(a) Use this information to complete the frequency tree.

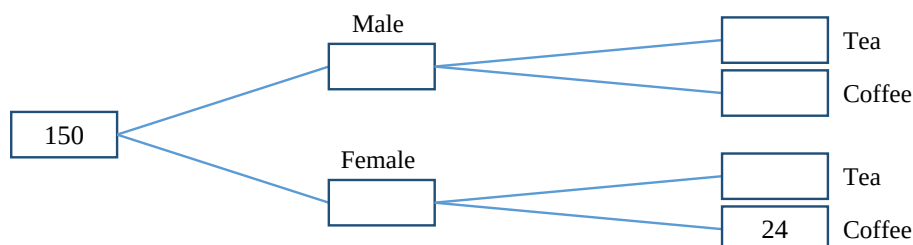


Each pair of branches adds to its box
first level adds to 500

Male 120 (Tea 72, Coffee 48); Female 380 (Tea 187, Coffee 193)

1 / 1

- 6 150 people were asked if they prefer tea or coffee. $\frac{3}{5}$ of the people who were male preferred tea. 76% of the people who were female preferred tea.
(a) Use this information to complete the frequency tree.

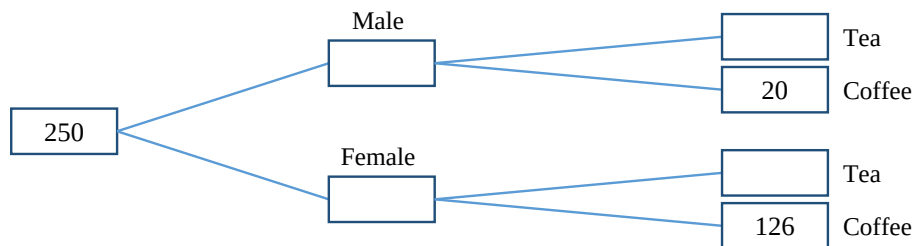


Each pair of branches adds to its box
first level adds to 150

Male 50 (Tea 30, Coffee 20); Female 100 (Tea 76, Coffee 24)

1 / 1

- 7 250 people were asked if they prefer tea or coffee. 60 males preferred tea.
 (a) Use this information to complete the frequency tree.
 (b) Write down the number of people who preferred tea.

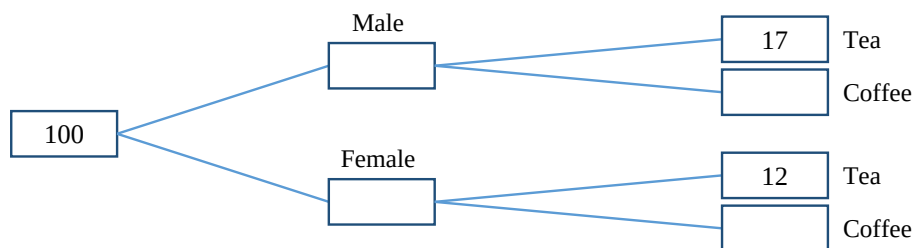


Each pair of branches adds to its box
 first level adds to 250

Male 80 (Tea 60, Coffee 20); Female 170
 (Tea 44, Coffee 126); (b) 104

/ 1

- 8 100 people were asked if they prefer tea or coffee. 28 females preferred coffee.
 (a) Use this information to complete the frequency tree.
 One of the 100 people is chosen at random. (b) Write down the probability that this person was female and preferred coffee.

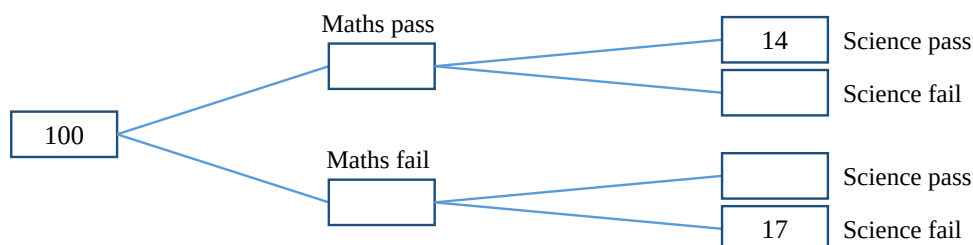


Each pair of branches adds to its box
 first level adds to 100

Male 60 (Tea 17, Coffee 43); Female 40 (Tea 12, Coffee 28); (b) $\frac{28}{100}$

/ 1

- 9 100 students sat a maths paper and a science paper. 47 of the 100 students passed maths.
 (a) Use this information to complete the frequency tree.
 One of the 100 students is chosen at random. (b) Write down the probability that this person passed maths and failed science.



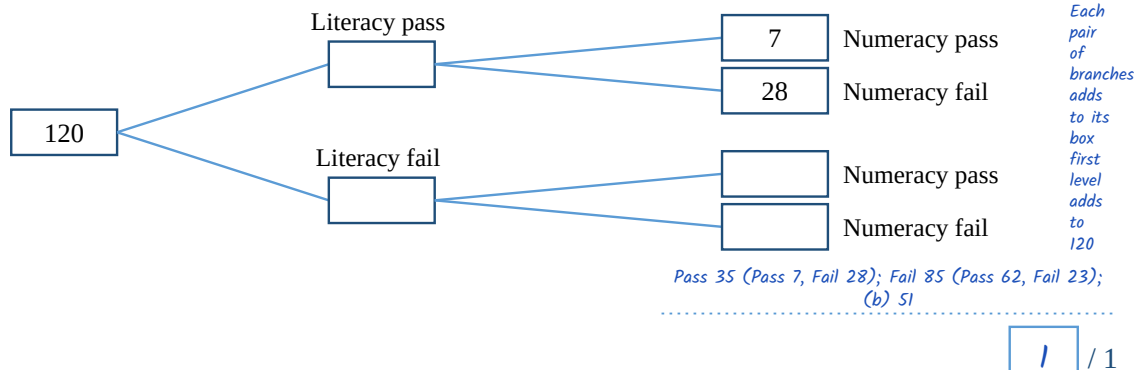
Each pair of branches adds to its box
 first level adds to 100

Pass 47 (Pass 14, Fail 33); Fail 53 (Pass 36, Fail 17); (b) $\frac{33}{100}$

/ 1

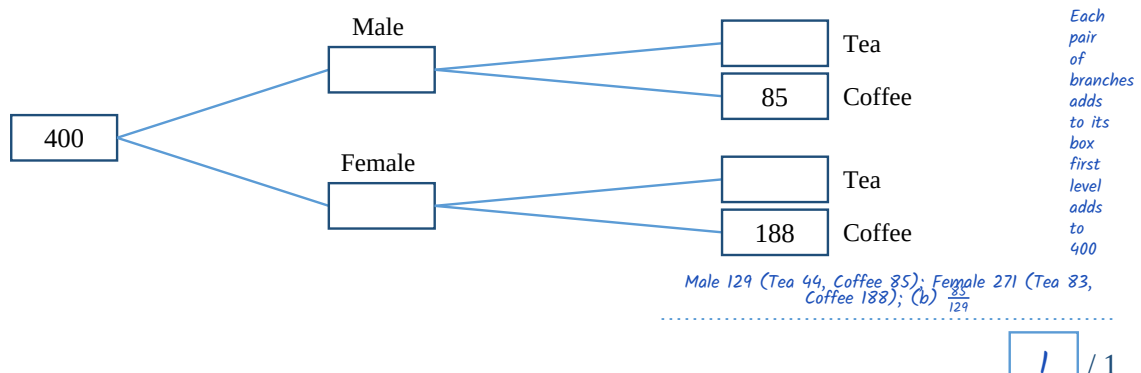
- 10** 120 people took a literacy test and a numeracy test. 51 of the 120 people failed the numeracy test.

(a) Use this information to complete the frequency tree.
 (b) Write down the number of people who failed the numeracy test.



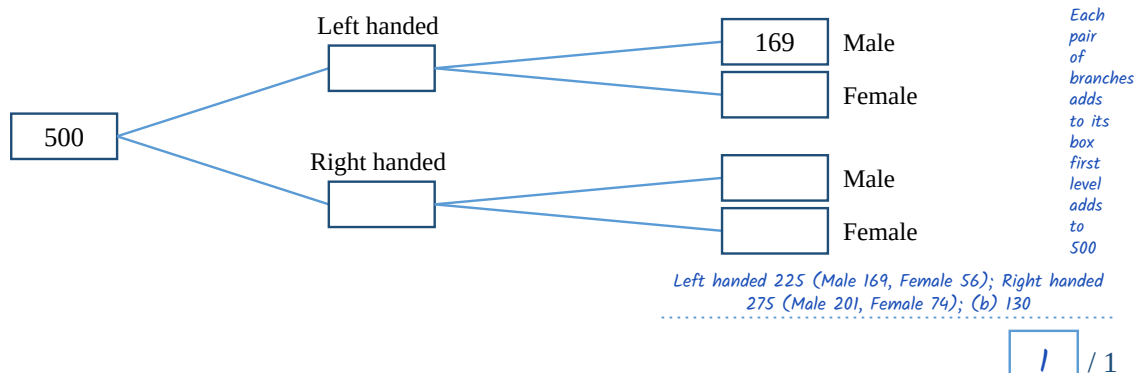
- 11** 400 people were asked if they prefer tea or coffee. 44 males preferred tea.

(a) Use this information to complete the frequency tree.
 One of the people who were male is chosen at random. (b) Write down the probability that this person preferred coffee.

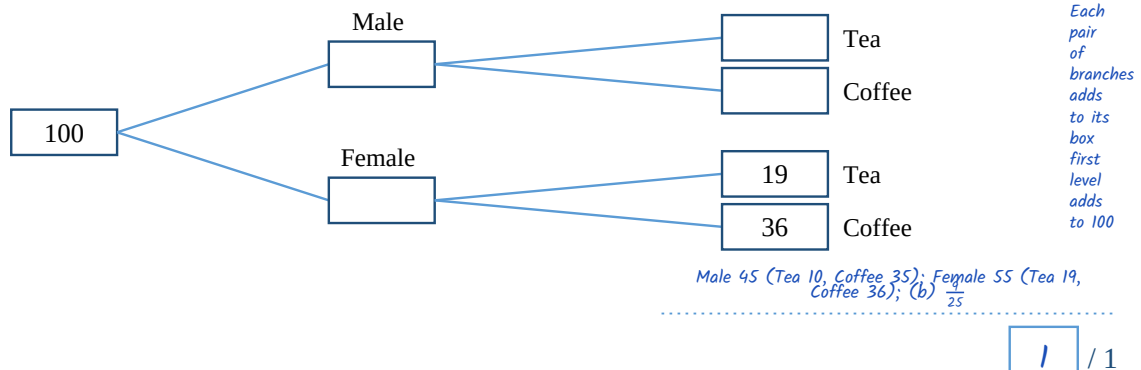


- 12** 500 people were surveyed. Each person is left handed or right handed. 74 of the 275 people who are right handed are female.

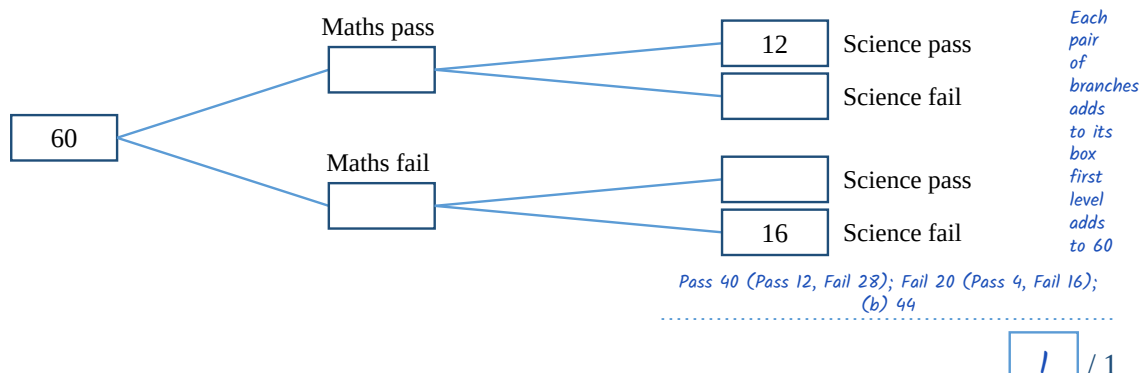
(a) Use this information to complete the frequency tree.
 (b) Write down the number of people who are female.



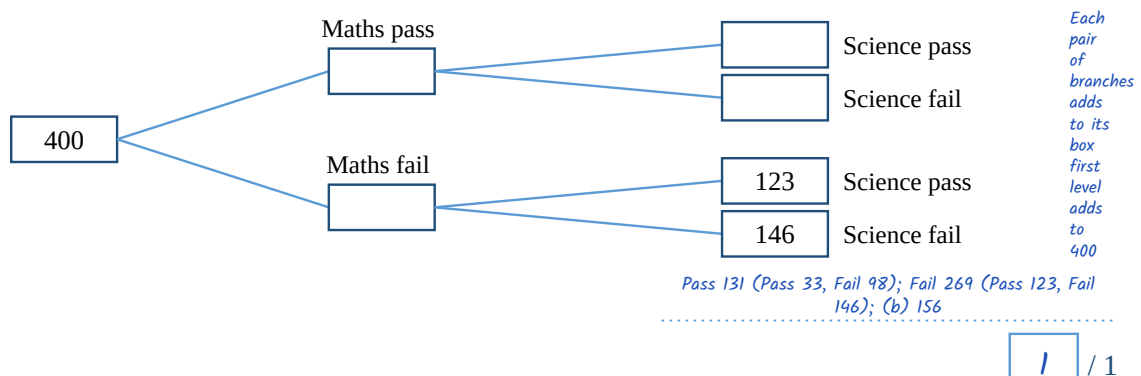
- 13** 100 people were asked if they prefer tea or coffee. 35 males preferred coffee.
 (a) Use this information to complete the frequency tree.
 One of the 100 people is chosen at random. (b) Write down the probability that this person was female and preferred coffee.



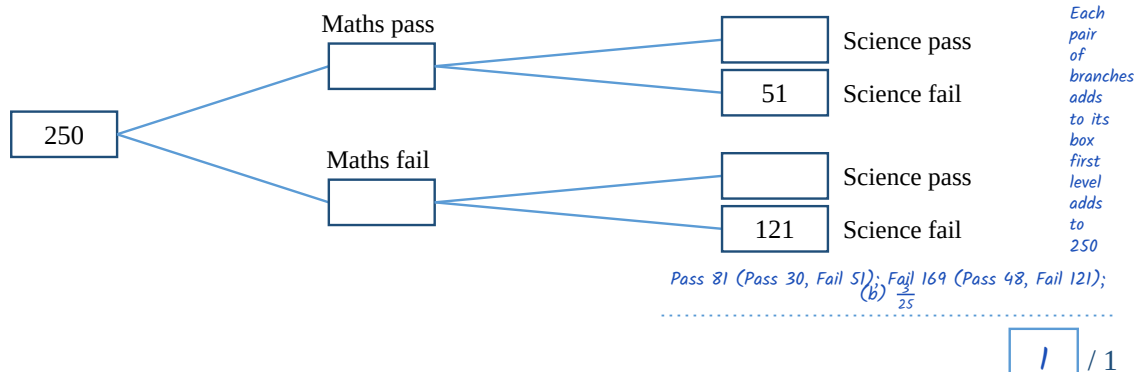
- 14** 60 students sat a maths paper and a science paper. 70% of the students who passed maths failed science.
 (a) Use this information to complete the frequency tree.
 (b) Write down the number of students who failed science.



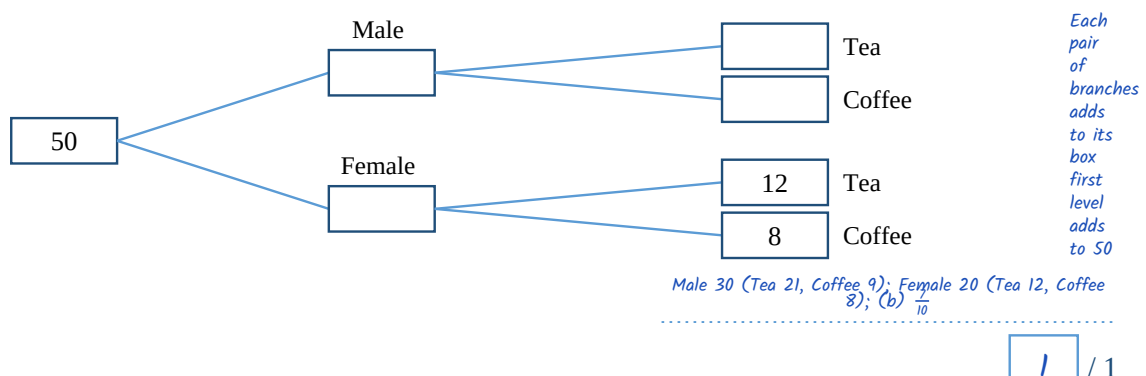
- 15** 400 students sat a maths paper and a science paper. 98 students who passed maths also failed science.
 (a) Use this information to complete the frequency tree.
 (b) Write down the number of students who passed science.



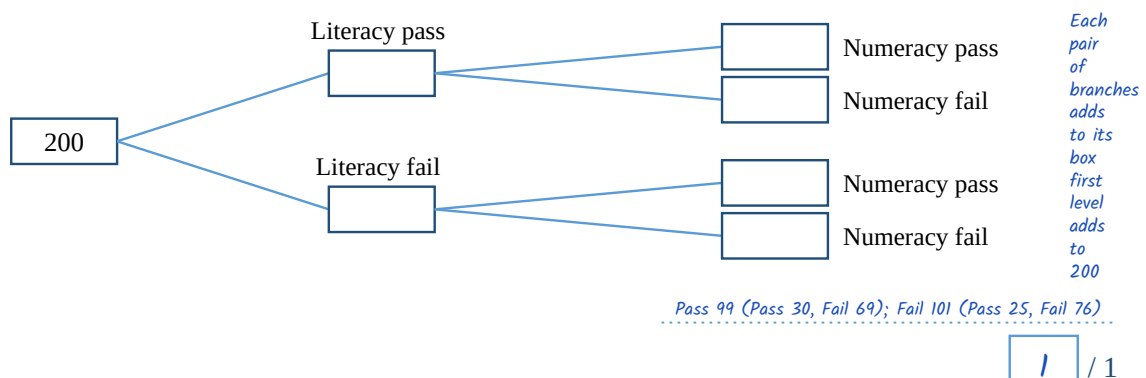
- 16** 250 students sat a maths paper and a science paper. 81 of the 250 students passed maths.
 (a) Use this information to complete the frequency tree.
 One of the 250 students is chosen at random. (b) Write down the probability that this person passed maths and passed science.



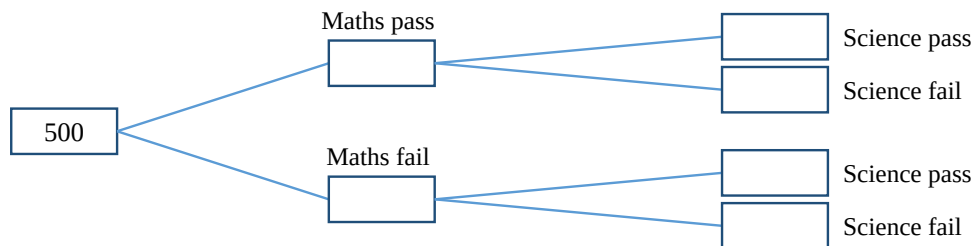
- 17** 50 people were asked if they prefer tea or coffee. 9 males preferred coffee.
 (a) Use this information to complete the frequency tree.
 One of the people who were male is chosen at random. (b) Write down the probability that this person preferred tea.



- 18** 200 people took a literacy test and a numeracy test. 76 of the 101 people who failed the literacy test failed the numeracy test. 25 of the 55 people who passed the numeracy test failed the literacy test.
 (a) Use this information to complete the frequency tree.



- 19 500 students sat a maths paper and a science paper. 103 students who failed maths also failed science. 168 of the 356 students who passed maths passed science.
(a) Use this information to complete the frequency tree.

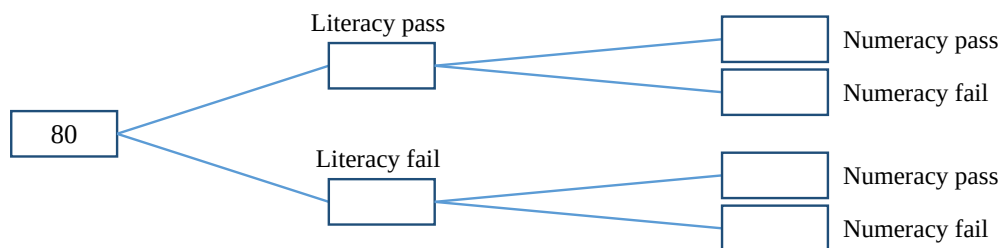


Each pair of branches adds to its box
first level adds to 500

Pass 356 (Pass 168, Fail 188); Fail 144
(Pass 41, Fail 103)

1 / 1

- 20 80 people took a literacy test and a numeracy test. 15 of the 44 people who passed the literacy test failed the numeracy test. 12 of the 36 people who failed the literacy test passed the numeracy test.
(a) Use this information to complete the frequency tree.

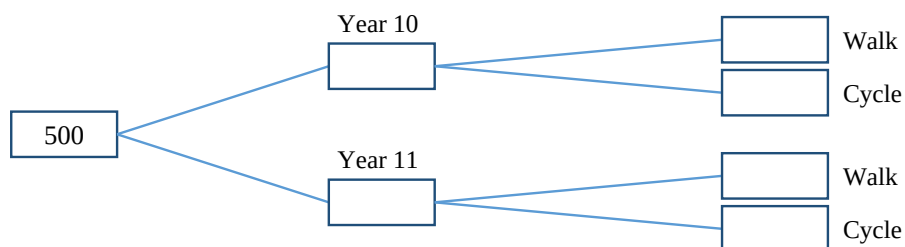


Each pair of branches adds to its box
first level adds to 80

Pass 44 (Pass 29, Fail 15); Fail 36 (Pass 12, Fail 24)

1 / 1

- 21 500 students were asked how they travel to school. Each student walks or cycles. 131 of the 500 students are in Year 11. 71 of the 228 students who cycle to school are in Year 11.
(a) Use this information to complete the frequency tree.



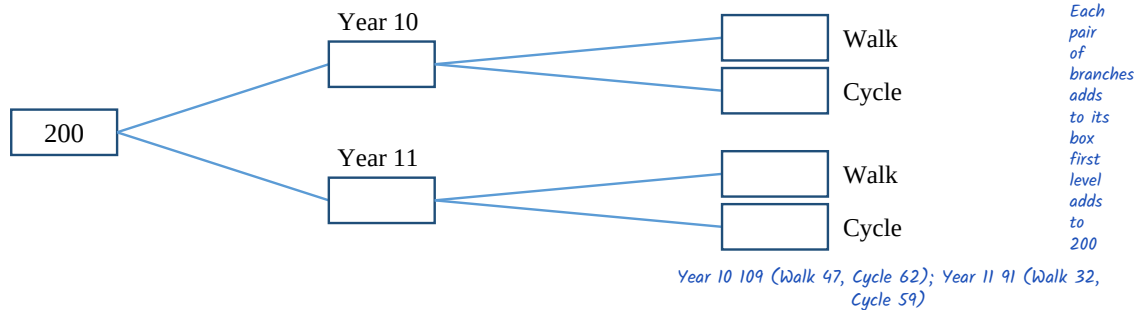
Each pair of branches adds to its box
first level adds to 500

Year 10 369 (Walk 212, Cycle 157); Year 11
131 (Walk 60, Cycle 71)

2 / 2

- 22 200 students were asked how they travel to school. Each student walks or cycles. 32 of the 91 students who are in Year 11 walk to school. 47 of the 109 students who are in Year 10 walk to school.

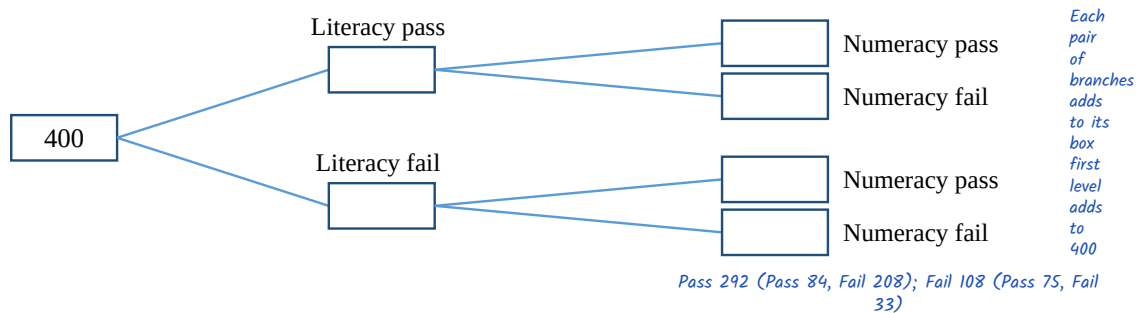
(a) Use this information to complete the frequency tree.



2 / 2

- 23 400 people took a literacy test and a numeracy test. 84 of the 292 people who passed the literacy test passed the numeracy test. 33 of the 241 people who failed the numeracy test failed the literacy test.

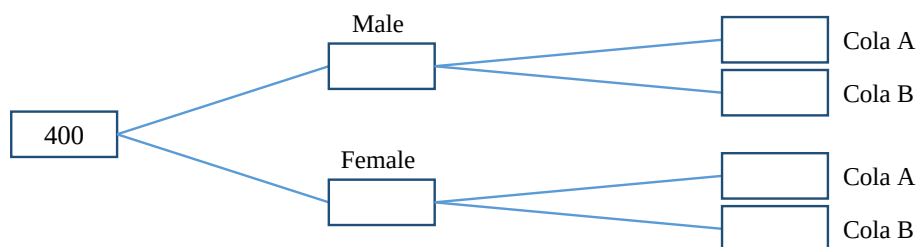
(a) Use this information to complete the frequency tree.



2 / 2

- 24 400 people took part in a taste test. Each person said if they prefer cola A or cola B. 105 of the 283 people who prefer cola B were male. 226 of the 400 people were female.

(a) Use this information to complete the frequency tree.

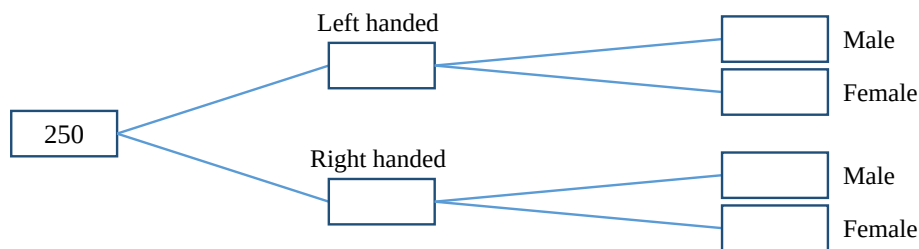


Each pair of branches adds to its box first level adds to 400

Male 174 (Cola A 69, Cola B 105); Female 226 (Cola A 48, Cola B 178)

2 / 2

- 25 250 people were surveyed. Each person is left handed or right handed. $\frac{2}{3}$ of the people who are left handed are male. 39 of the 73 people who are male are right handed.
(a) Use this information to complete the frequency tree.

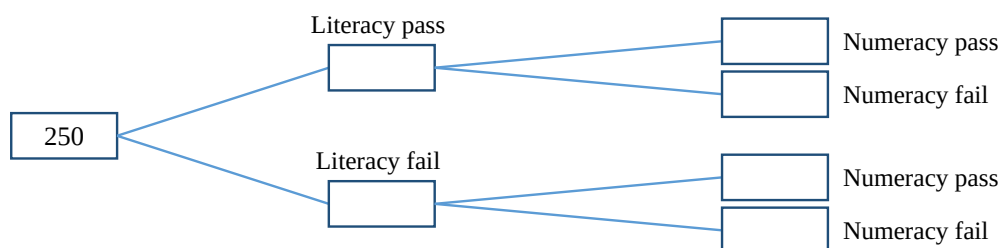


Each pair of branches adds to its box
first level adds to 250

Left handed 51 (Male 34, Female 17); Right handed 199
(Male 39, Female 160)

2 / 2

- 26 250 people took a literacy test and a numeracy test. 61 of the 92 people who failed the numeracy test passed the literacy test. 90 of the 158 people who passed the numeracy test passed the literacy test.
(a) Use this information to complete the frequency tree.

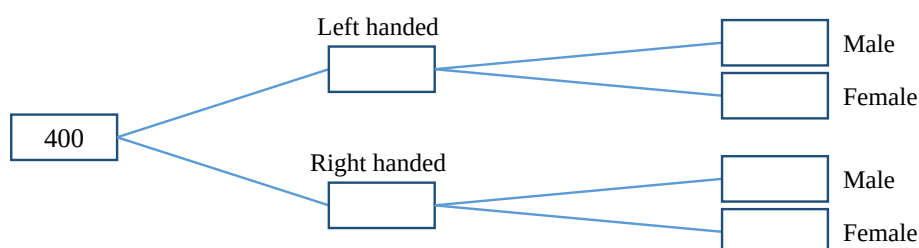


Each pair of branches adds to its box
first level adds to 250

Pass 151 (Pass 90, Fail 61); Fail 99 (Pass 68, Fail 31)

2 / 2

- 27 400 people were surveyed. Each person is left handed or right handed. 164 of the 261 people who are female are right handed. 79 of the 139 people who are male are right handed.
(a) Use this information to complete the frequency tree.

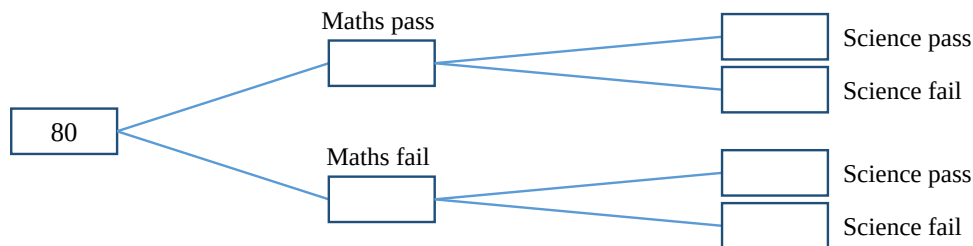


Each pair of branches adds to its box
first level adds to 400

Left handed 157 (Male 60, Female 97);
Right handed 243 (Male 79, Female 164)

2 / 2

- 28 80 students sat a maths paper and a science paper. 13 of the 32 students who failed maths passed science. 20 of the 48 students who passed maths passed science.
(a) Use this information to complete the frequency tree.

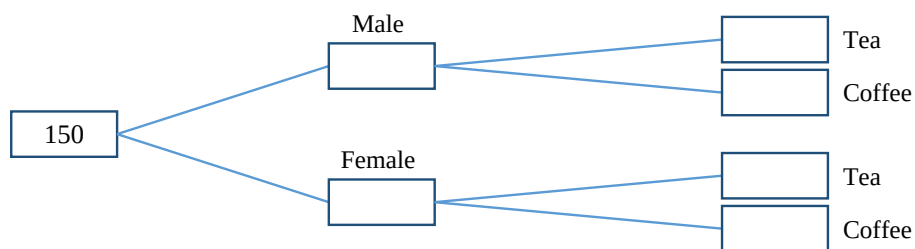


Each pair of branches adds to its box
first level adds to 80

Pass 48 (Pass 20, Fail 28); Fail 32 (Pass 13, Fail 19)

2 / 2

- 29 150 people were asked if they prefer tea or coffee. 80 of the 150 people were male. $\frac{7}{8}$ of the people who were male preferred coffee. 119 of the 150 people preferred coffee.
(a) Use this information to complete the frequency tree.

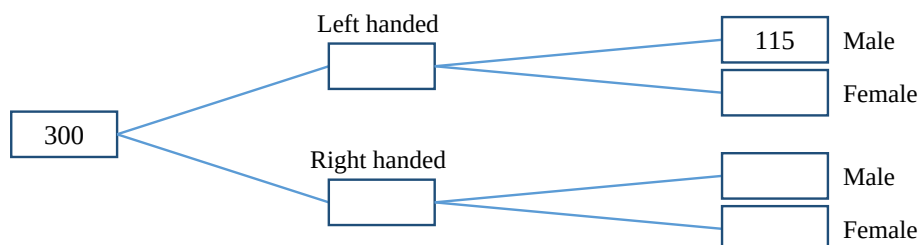


$\frac{7}{8}$ of 80 = 70
119 - 70 = 49 for the other group

Male 80 (Tea 10, Coffee 70); Female 70 (Tea 21, Coffee 49)

2 / 2

- 30 300 people were surveyed. Each person is left handed or right handed. 94 of the 300 people are right handed. 48 of the 94 people who are right handed are female.
(a) Use this information to complete the frequency tree.
(b) Write down the number of people who are female.

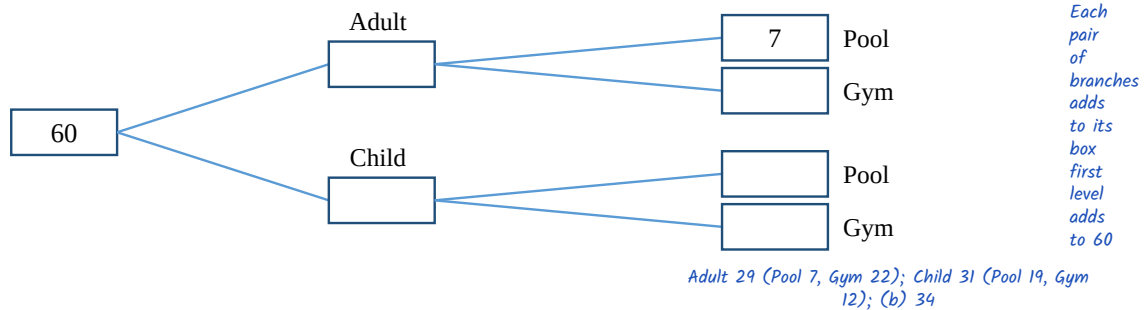


Each pair of branches adds to its box first level adds to 300

Left handed 206 (Male 115, Female 91); Right handed 94 (Male 46, Female 48); (b) 139

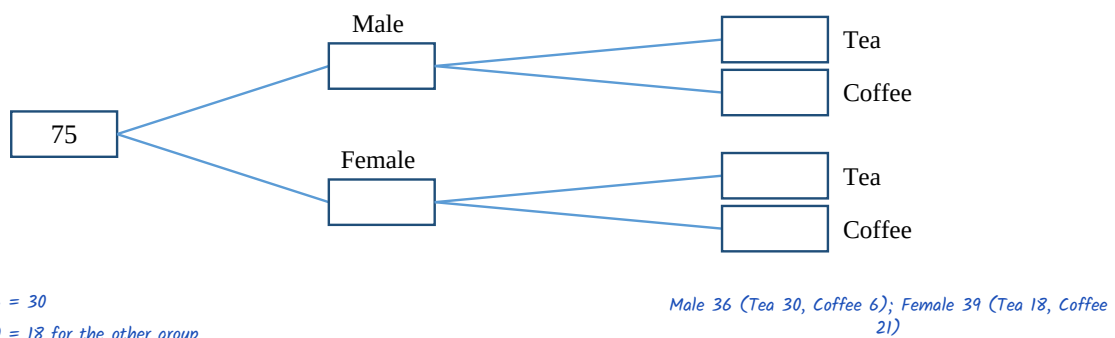
2 / 2

- 31 60 members of a leisure centre were asked if they use the pool or the gym. 31 of the 60 members are children. 12 of the 31 members who are children use the gym.
- (a) Use this information to complete the frequency tree.
- (b) Write down the number of members who use the gym.



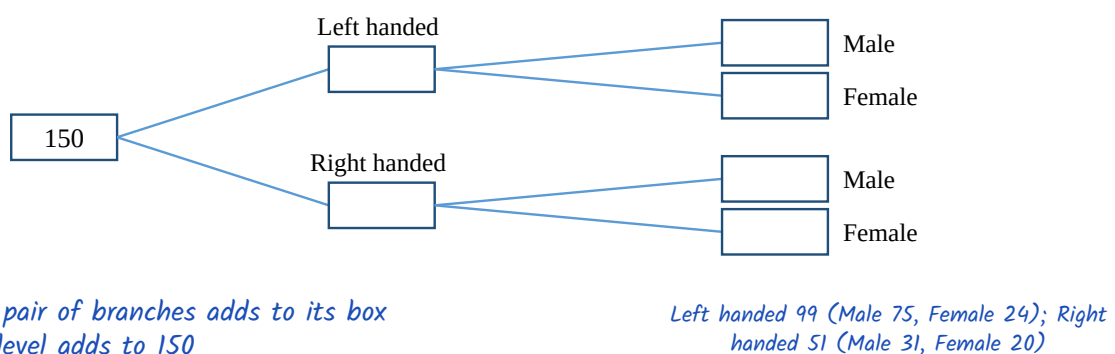
2 / 2

- 32 75 people were asked if they prefer tea or coffee. 36 of the 75 people were male. $\frac{5}{6}$ of the people who were male preferred tea. 48 of the 75 people preferred tea.
- (a) Use this information to complete the frequency tree.



2 / 2

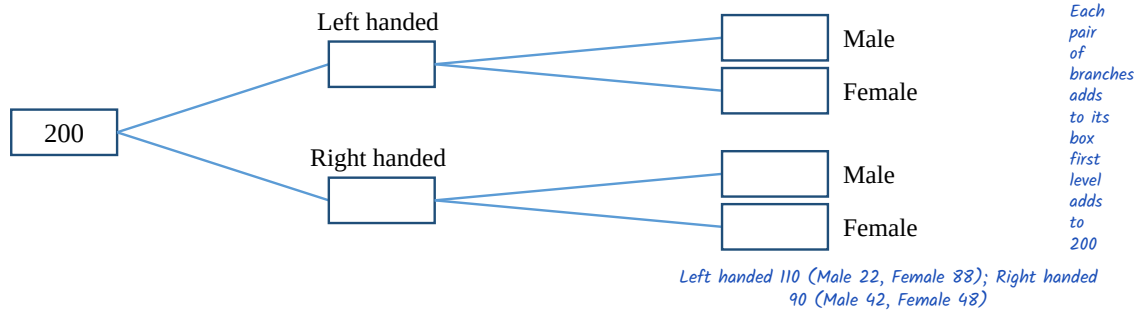
- 33 150 people were surveyed. Each person is left handed or right handed. 31 right handed people are male. 75 left handed people are male. 34% of the 150 people are right handed.
- (a) Use this information to complete the frequency tree.



2 / 2

- 34 200 people were surveyed. Each person is left handed or right handed. 80% of the people who are left handed are female. 110 of the 200 people are left handed. 48 right handed people are female.

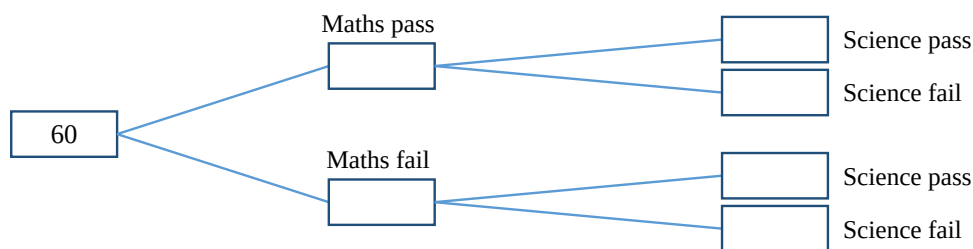
(a) Use this information to complete the frequency tree.



2 / 2

- 35 60 students sat a maths paper and a science paper. 20 of the 60 students passed maths. $\frac{3}{4}$ of the students who passed maths passed science. 45 of the 60 students passed science.

(a) Use this information to complete the frequency tree.



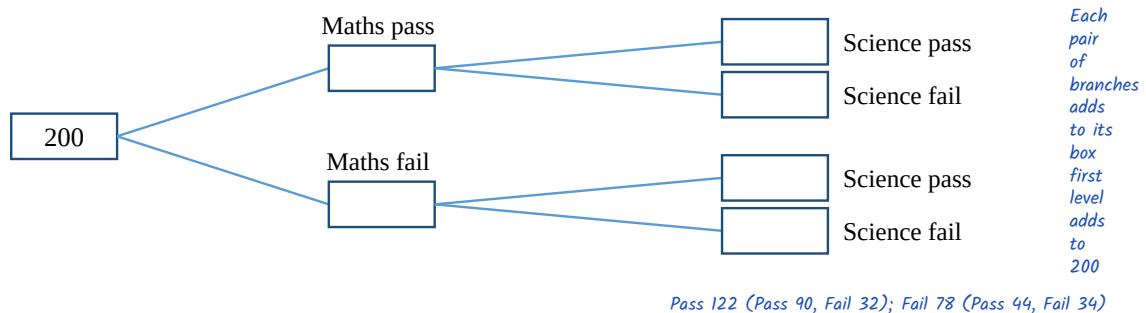
$\frac{3}{4}$ of 20 = 15
45 - 15 = 30 for the other group

Pass 20 (Pass 15, Fail 5); Fail 40 (Pass 30, Fail 10)

2 / 2

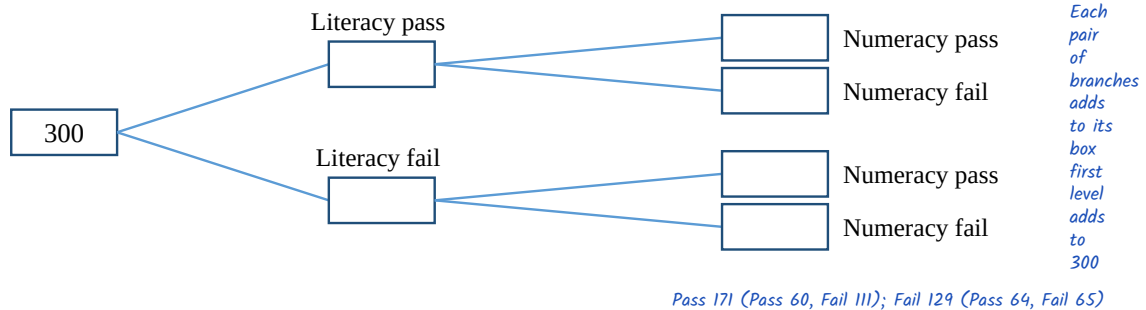
- 36 200 students sat a maths paper and a science paper. 66 of the 200 students failed science. 34 students who failed maths also failed science. 90 of the 134 students who passed science passed maths.

(a) Use this information to complete the frequency tree.



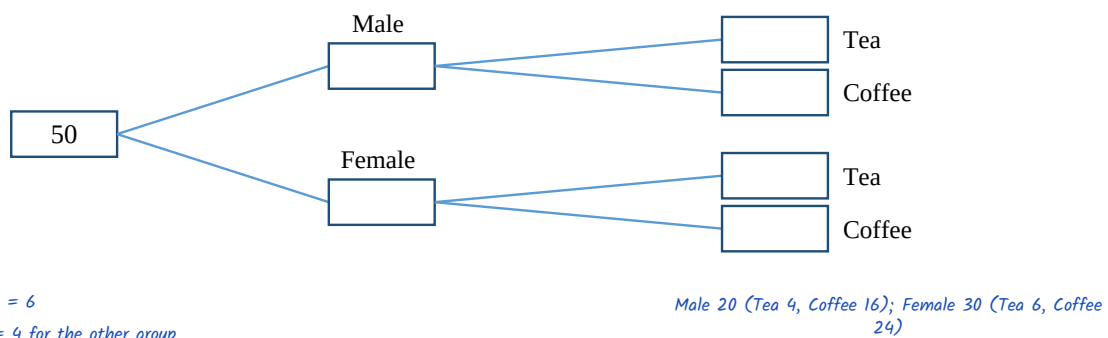
2 / 2

- 37 300 people took a literacy test and a numeracy test. 111 people who passed the literacy test also failed the numeracy test. 64 people who failed the literacy test also passed the numeracy test. 60 people who passed the literacy test also passed the numeracy test.
- (a) Use this information to complete the frequency tree.



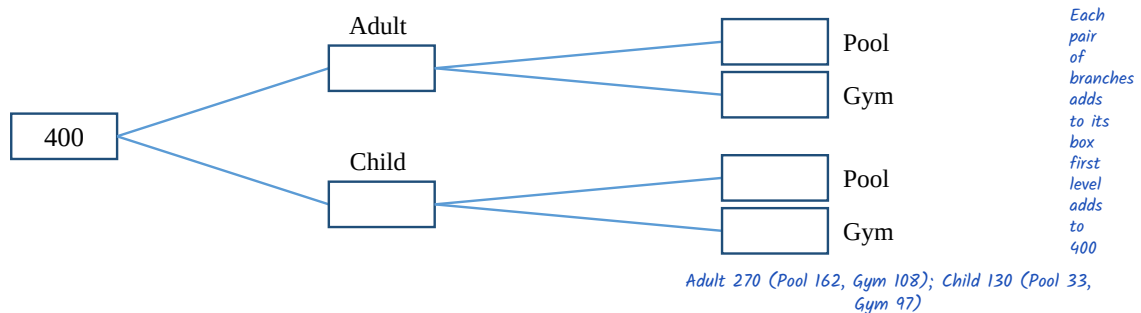
2 / 2

- 38 50 people were asked if they prefer tea or coffee. 30 of the 50 people were female. $\frac{1}{5}$ of the people who were female preferred tea. 10 of the 50 people preferred tea.
- (a) Use this information to complete the frequency tree.



2 / 2

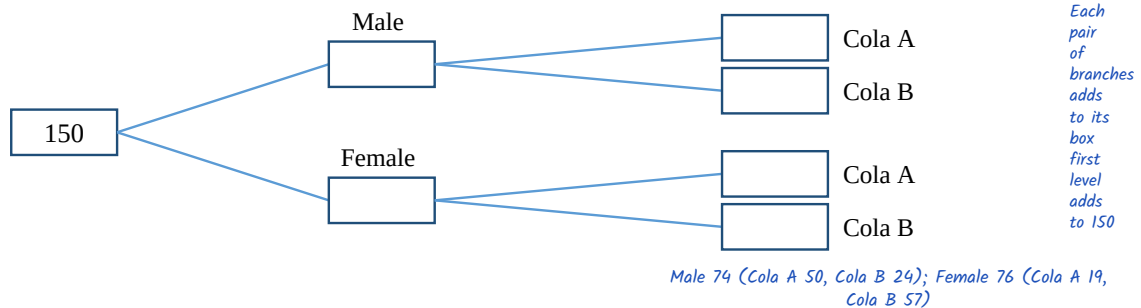
- 39 400 members of a leisure centre were asked if they use the pool or the gym. 60% of the members who are adults use the pool. 162 of the 270 members who are adults use the pool. 162 of the 195 members who use the pool are adults.
- (a) Use this information to complete the frequency tree.



3 / 3

- 40 150 people took part in a taste test. Each person said if they prefer cola A or cola B. 19 females prefer cola A. 19 of the 76 people who were female prefer cola A. 69 of the 150 people prefer cola A.

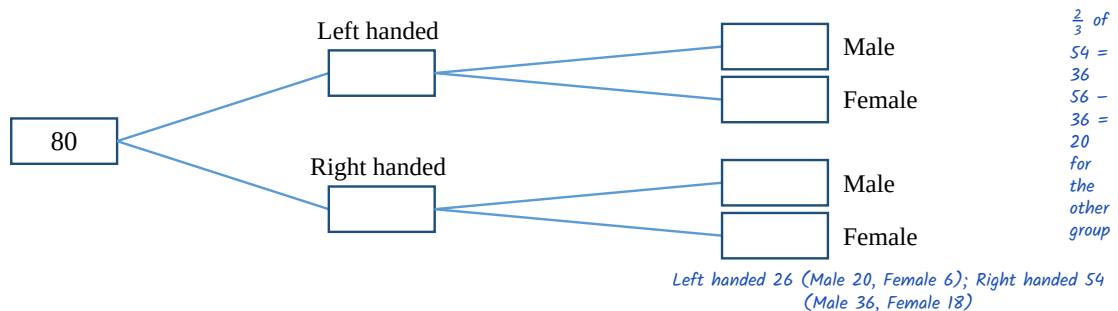
(a) Use this information to complete the frequency tree.



3 / 3

- 41 80 people were surveyed. Each person is left handed or right handed. 54 of the 80 people are right handed. $\frac{2}{3}$ of the people who are right handed are male. 56 of the 80 people are male.

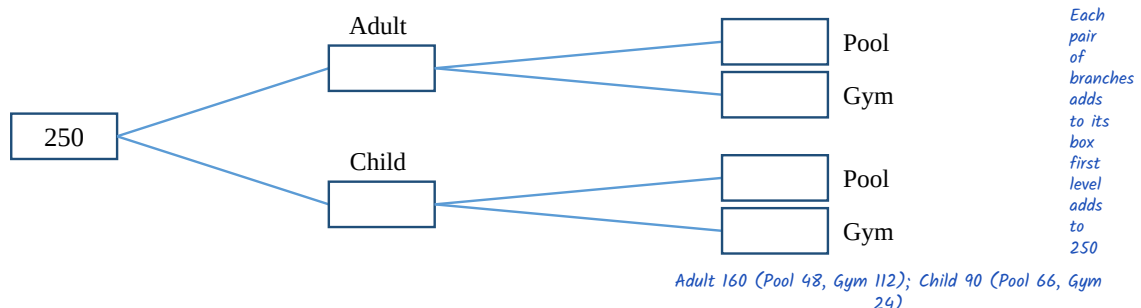
(a) Use this information to complete the frequency tree.



3 / 3

- 42 250 members of a leisure centre were asked if they use the pool or the gym. 70% of the members who are adults use the gym. 48 adults use the pool. 136 of the 250 members use the gym.

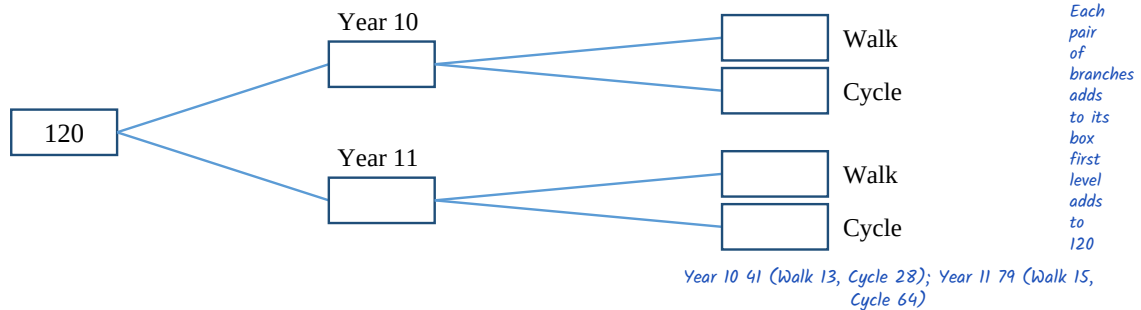
(a) Use this information to complete the frequency tree.



3 / 3

- 43 120 students were asked how they travel to school. Each student walks or cycles. 92 of the 120 students cycle to school. 28 Year 10 students cycle to school. 64 of the 79 students who are in Year 11 cycle to school.

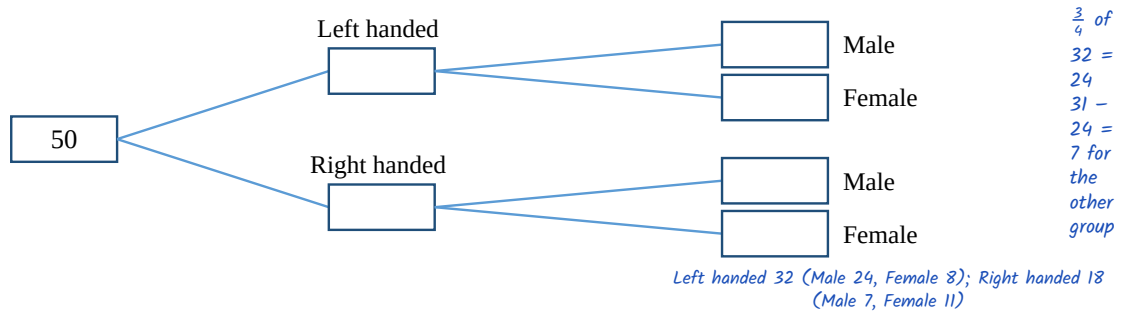
(a) Use this information to complete the frequency tree.



3 / 3

- 44 50 people were surveyed. Each person is left handed or right handed. 32 of the 50 people are left handed. $\frac{3}{4}$ of the people who are left handed are male. 31 of the 50 people are male.

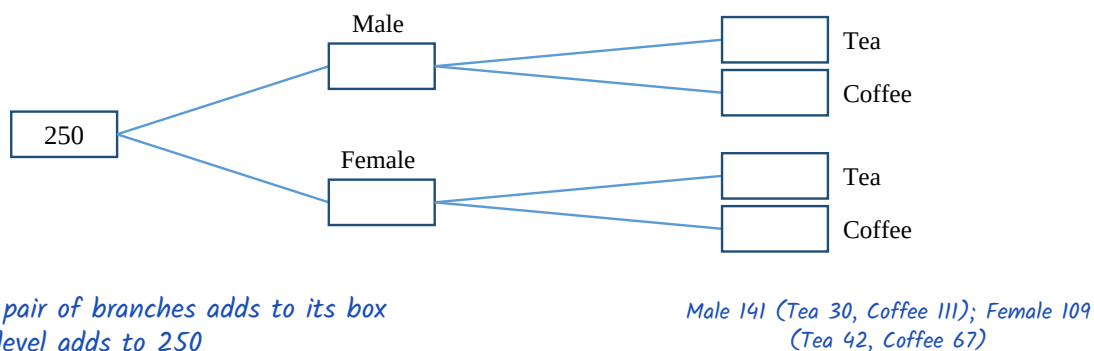
(a) Use this information to complete the frequency tree.



3 / 3

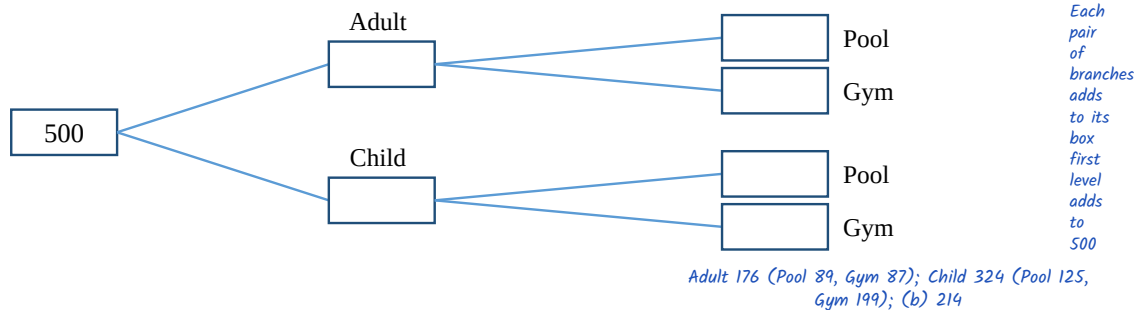
- 45 250 people were asked if they prefer tea or coffee. 111 males preferred coffee. 72 of the 250 people preferred tea. 42 females preferred tea.

(a) Use this information to complete the frequency tree.



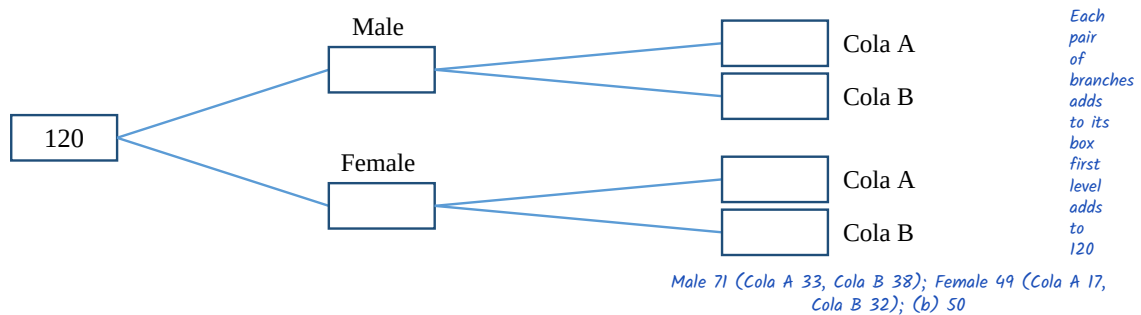
3 / 3

- 46 500 members of a leisure centre were asked if they use the pool or the gym. 89 of the 214 members who use the pool are adults. 199 of the 324 members who are children use the gym.
- (a) Use this information to complete the frequency tree.
- (b) Write down the number of members who use the pool.



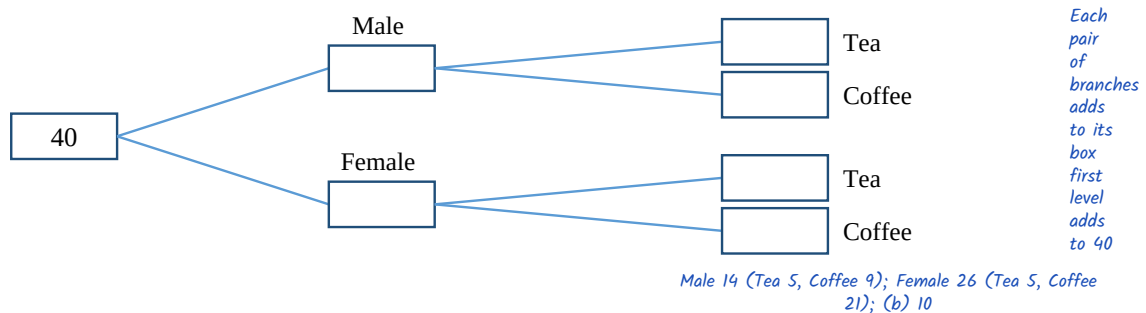
3 / 3

- 47 120 people took part in a taste test. Each person said if they prefer cola A or cola B. 17 of the 50 people who prefer cola A were female. 38 of the 71 people who were male prefer cola B.
- (a) Use this information to complete the frequency tree.
- (b) Write down the number of people who prefer cola A.



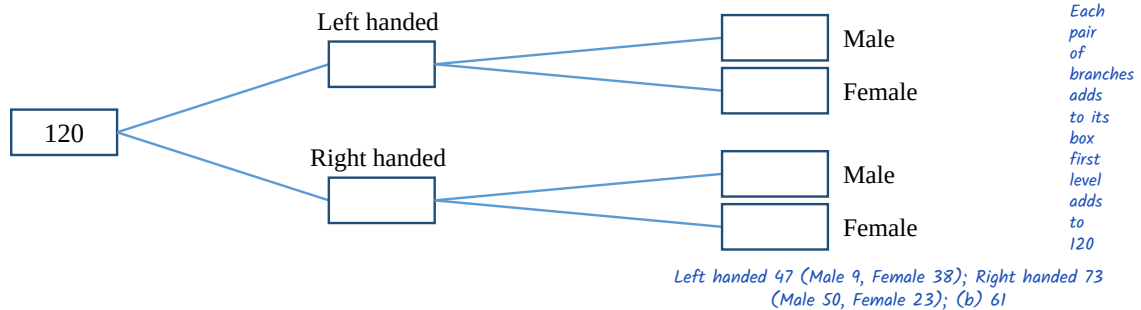
3 / 3

- 48 40 people were asked if they prefer tea or coffee. 14 of the 40 people were male. 5 of the 10 people who preferred tea were female.
- (a) Use this information to complete the frequency tree.
- (b) Write down the number of people who preferred tea.



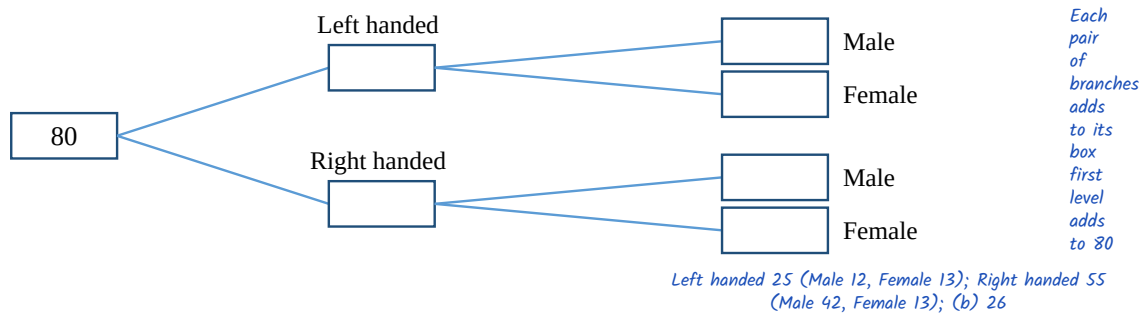
3 / 3

- 49 120 people were surveyed. Each person is left handed or right handed. 23 of the 61 people who are female are right handed. 50 of the 59 people who are male are right handed.
- (a) Use this information to complete the frequency tree.
- (b) Write down the number of people who are female.



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- 50 80 people were surveyed. Each person is left handed or right handed. 55 of the 80 people are right handed. 42 right handed people are male. 26 of the 80 people are female.
- (a) Use this information to complete the frequency tree.
- (b) Write down the number of people who are female.



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