3.19 Frequency Trees: 30-minute Pack

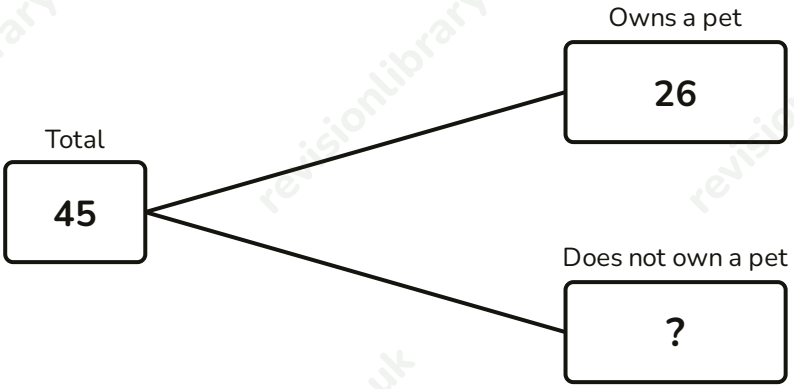
EDEXCEL 1MA1 · Calculator allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Dwayne asked 45 pupils whether they own a pet. 26 of them said yes.



(a) Complete the frequency tree by working out the number of pupils who do not own a pet. **(2)**

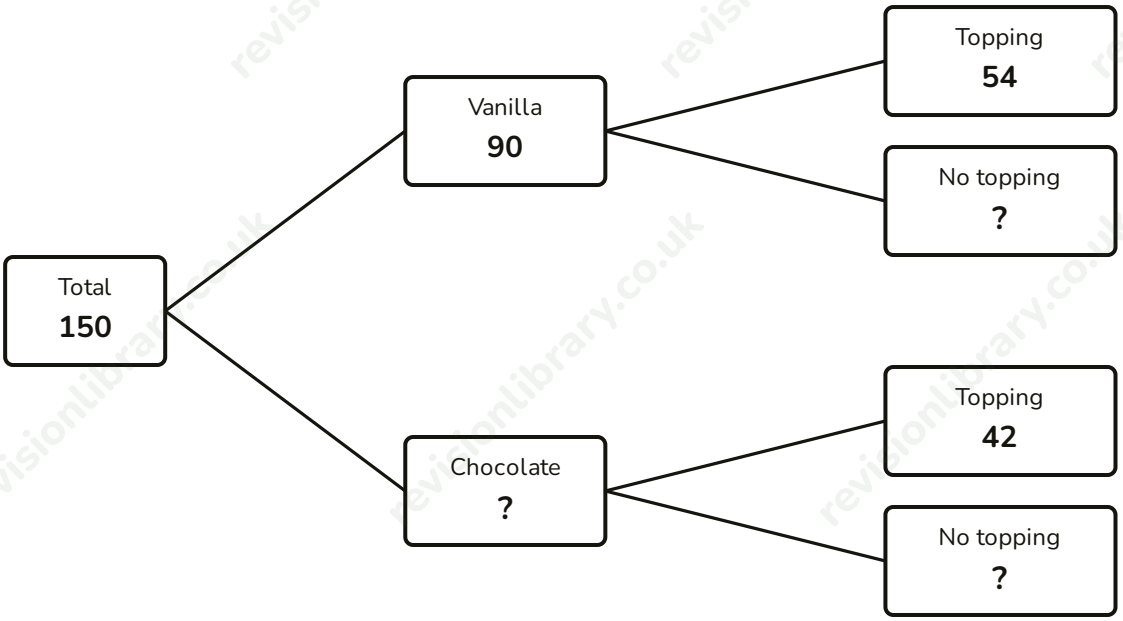
(b) A pupil is chosen at random from the 45 pupils. Work out the probability that this pupil owns a pet. Give your answer as a decimal, correct to 2 decimal places. **(2)**

.....

(Total for Question 1 is 4 marks)

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2 An ice cream van recorded whether 150 customers chose vanilla or chocolate, and whether they added a topping. 90 customers chose vanilla, of whom 54 added a topping. Of the customers who chose chocolate, 42 added a topping.



(a) Work out the number of customers who chose chocolate. **(1)**

.....

(b) Work out the number of chocolate customers who did not add a topping. **(1)**

.....

(c) A topping costs an extra £0.60. Work out the total extra money made from all the toppings sold. **(2)**

.....

(Total for Question 2 is 4 marks)

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3 A leisure centre has 80 members. 60 of them are adults and the rest are children.
50% of the adults and half of the children have a season ticket.
How many of the members do not have a season ticket?

(Total for Question 3 is 4 marks)

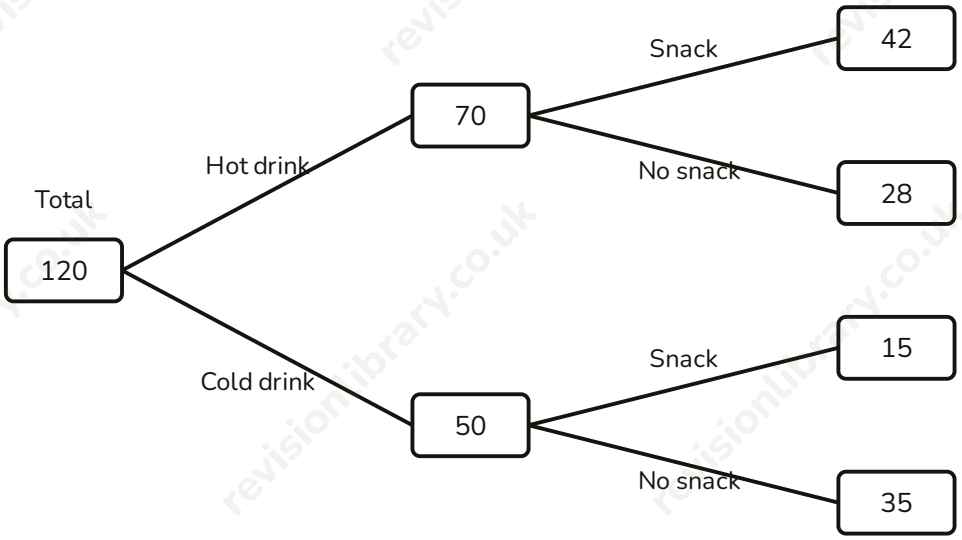
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4 There are 150 students in Year 11. 115 of them are boys.
60% of the boys and 40% of the girls walk to school.
Work out the total number of students who walk to school.

(Total for Question 4 is 4 marks)

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5 A cafe manager recorded whether 120 customers bought a hot or a cold drink, and whether they also bought a snack. The completed frequency tree is shown below.



(a) Write down the number of customers who bought a cold drink and a snack. **(1)**

.....

(b) One customer is chosen at random from the 120 customers. Work out the probability that this customer bought a hot drink and did not buy a snack. Give your answer as a fraction in its simplest form. **(2)**

.....

(c) Work out the total number of customers who bought a snack. **(1)**

.....

(Total for Question 5 is 4 marks)

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6 In a survey 300 people are asked whether they exercise regularly and whether they take a vitamin supplement. The frequency tree starts with 300 people: 60% exercise regularly. Of those who exercise, 30% take a supplement. Of those who do not exercise, 10% take a supplement.

Complete the frequency tree values and find the probability that a randomly chosen person both exercises regularly and takes a supplement. Give your answer as a fraction in lowest terms.

(a) Complete the frequencies on the tree (write the four end frequencies). **(2)**

(b) Write down the probability that a randomly chosen person both exercises regularly and takes a supplement, giving your answer as a fraction in lowest terms. **(2)**

(Total for Question 6 is 4 marks)

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Mark scheme · 3.19 Frequency Trees: 30-minute Pack

Question 1

(a) 45 - 26	**M1**
(a) 19 cao	**A1**
(a) Answer: 19	
(b) 26 / 45	**M1**
(b) awrt 0.58	**A1**
(b) Answer: 0.58	

Question 2

(a) 60 (150 - 90)	**B1**
(a) Answer: 60	
(b) 18 (60 - 42)	**B1ft**
(b) Answer: 18	
(c) (54 + 42) x 0.60	**M1**
(c) 57.60 (pounds), oe with correct units	**A1**
(c) Answer: £57.60	

Question 3

children = 20	**M1**
adults with ticket 30 and children with ticket 10	**M1**
total with tickets	**M1**
40	**A1**
Answer: 40	

Question 4

girls = 150 - 115 = 35	**M1**
60% of 115 = 69 or 40% of 35 = 14	**M1**
both numbers found	**M1**
83	**A1**
Answer: 83	

Question 5

(a) 15 cao	**B1**
(a) Answer: 15	
(b) 28/120	**M1**
(b) 7/30 oe	**A1**
(b) Answer: 7/30	
(c) 57 (42 + 15)	**B1**
(c) Answer: 57	

Question 6

(a) correct method to compute each branch from 300	**M1**
(a) all four end frequencies correct integers cao	**A1**
(a) Answer: Exercise and supplement 54; exercise and no supplement 126; no exercise and supplement 12; no exercise and no supplement 108.	
(b) use of frequency 54 / 300 or equivalent	**M1**
(b) 9/50 cao	**A1**
(b) Answer: 9/50	

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