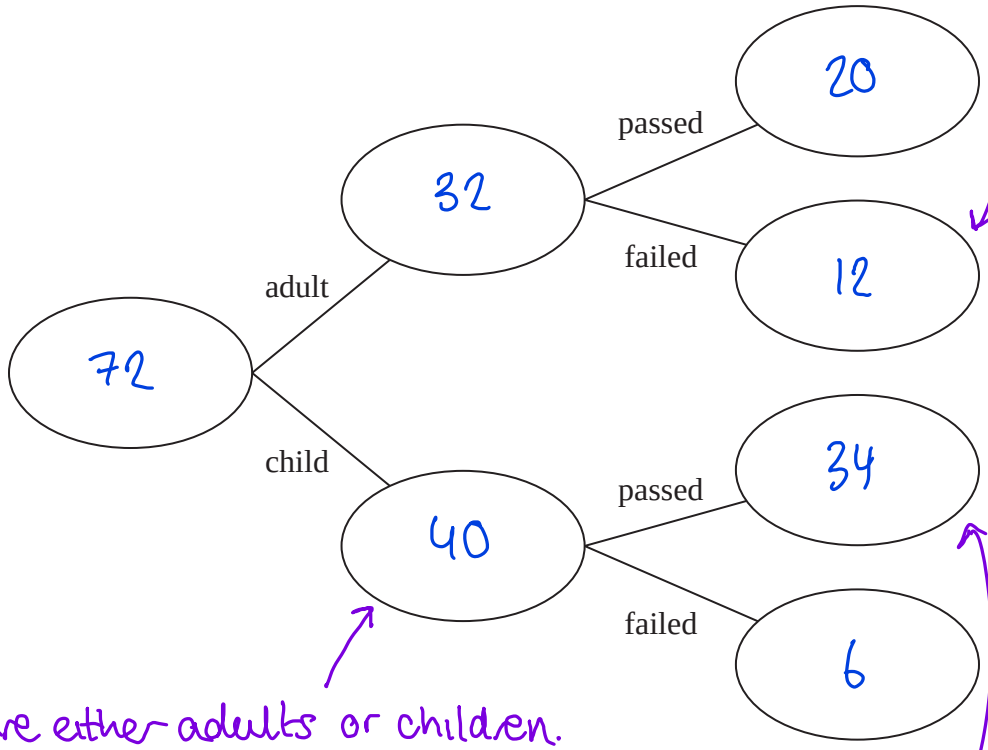
1 72 people did a test.

20 of the 32 adults who did the test passed.
6 of the children who did the test failed.

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

The adults either passed or failed.
Number who failed = 32 - 20 = 12



People are either adults or children.
Number of children = 72 - 32 = 40

Children either passed or failed. Number who passed = 40 - 6 = 34

3

(3)

One of these people is picked at random.

(b) Find the probability that this person is an adult who failed the test.

probability = $\frac{\text{adults who failed}}{\text{all that did the test}} = \frac{12}{72}$ 1 1

$\frac{12}{72}$

Note: did not ask for simplest form.

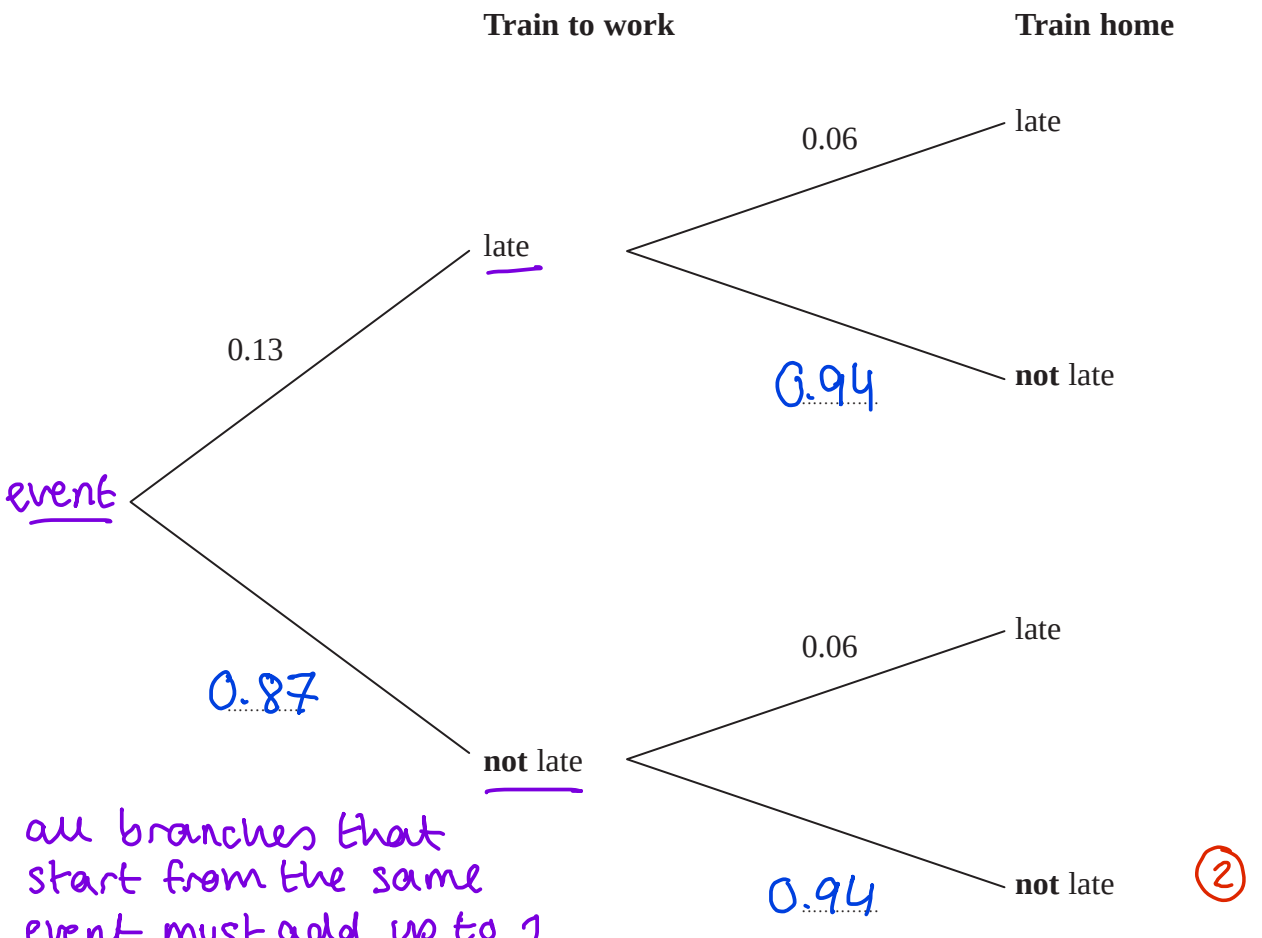
(2)

(Total for Question 1 is 5 marks)

2 Lorena gets a train at the same time each morning to go to work.
She gets a train at the same time each evening to come home.

The probability tree diagram shows the probabilities of each train arriving late.

(a) Complete the probability tree diagram.



all branches that start from the same event must add up to 1.

(2)

For a day that Lorena goes to work,

(b) work out the probability that the train to work and the train home will both arrive late.

$0.13 \times 0.06 = 0.0078$

'and' means multiply probabilities
'or' means add probabilities

0.0078

(2)

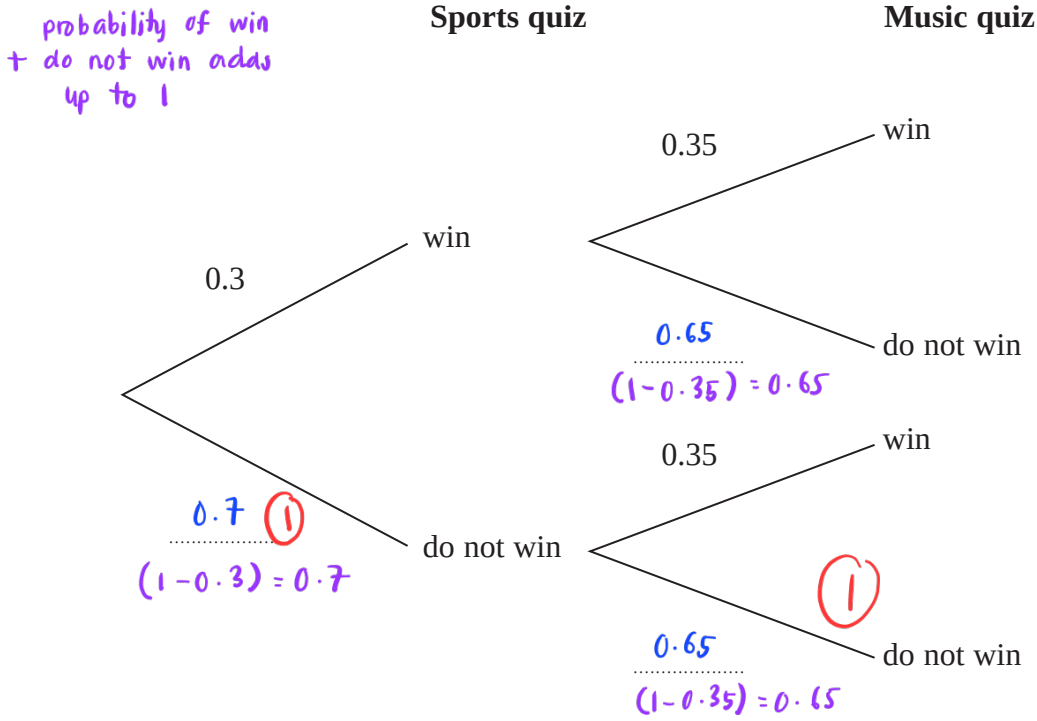
(Total for Question 2 is 4 marks)

3 One weekend the Keddie family is going to do a sports quiz and a music quiz.

The probability that the family will win the sports quiz is 0.3
The probability that the family will win the music quiz is 0.35

(a) Complete the probability tree diagram.

probability of win + do not win adds up to 1



(1 − 0.3) = 0.7

(1 − 0.35) = 0.65

(1 − 0.35) = 0.65

(2)

(b) Work out the probability that the Keddie family will win both the sports quiz and the music quiz.

if P(A) 'AND' P(B) : we multiply
if P(A) 'OR' P(B) : we add up

P(win sports) = 0.3

P(win music) = 0.35

P(win both) = 0.3 × 0.35

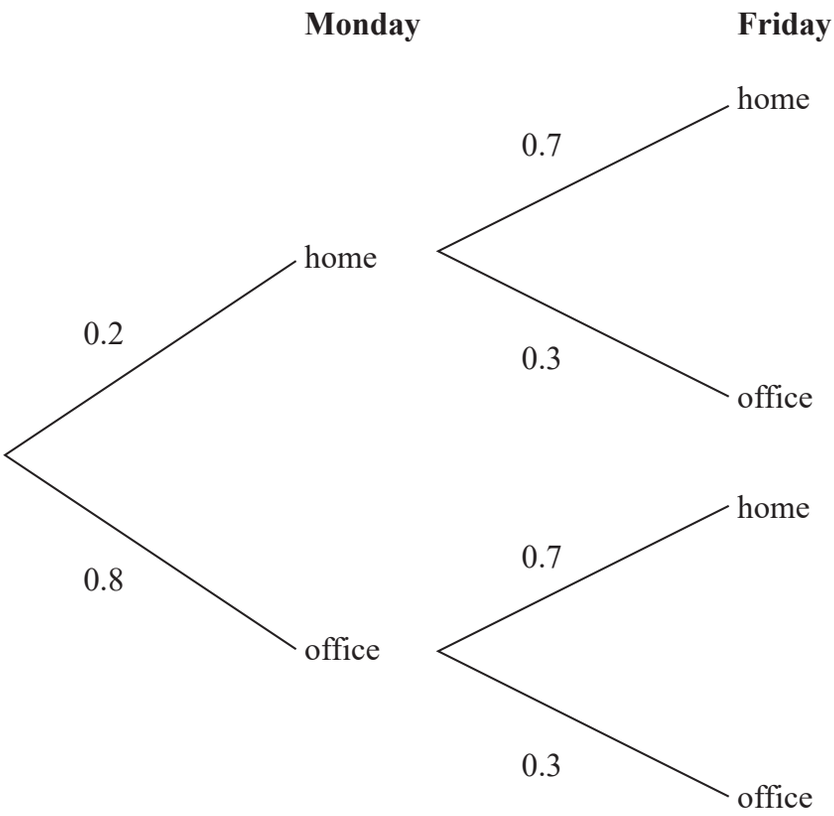
= 0.105

0.105

(2)

(Total for Question 3 is 4 marks)

4 The probability tree diagram shows the probabilities that Shayla will work at home or will work at the office on two days next week.



Work out the probability that Shayla will work at home on Monday and work at the office on Friday.

✓ (1) ✓ (1)

$0.2 \times 0.3 = 0.06$

0.06

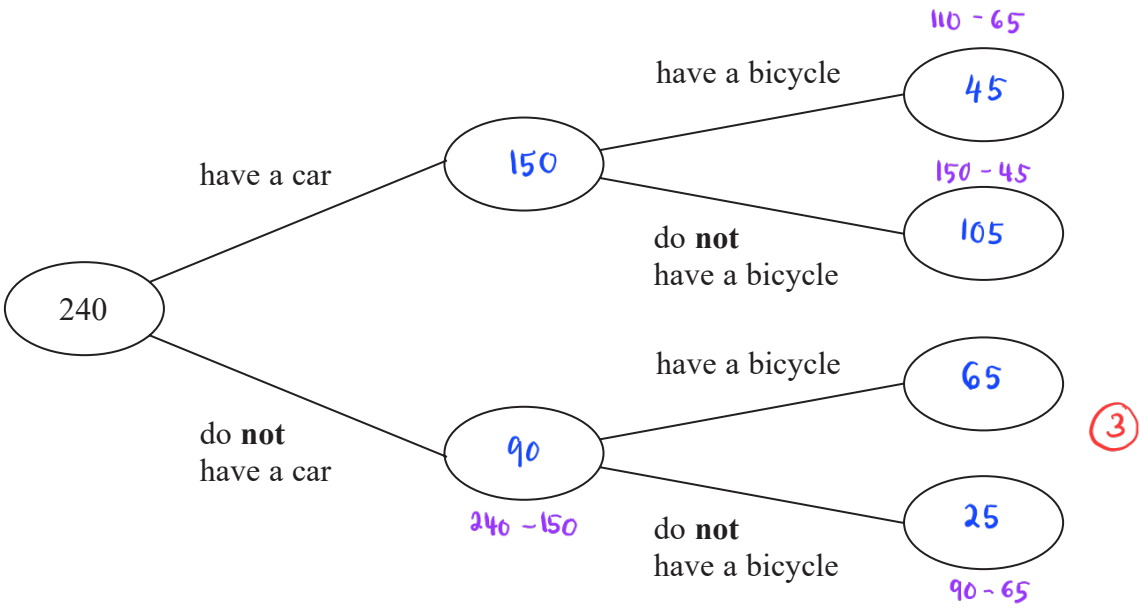
(Total for Question 4 is 2 marks)

5 240 people work at a factory.

Of these people

150 have a car
110 have a bicycle
65 of the people who have a bicycle do **not** have a car.

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



(3)

(b) What percentage of the 150 people who have a car also have a bicycle?

People who have a car and also have a bicycle = 45

$\frac{45}{150} \times 100\% = 30\%$ (1) (1)

30 %

(2)

(Total for Question 5 is 5 marks)