7: Riley has a bag containing 3 white beads and 6 yellow beads only.

Two beads are selected at random from the bag, one at a time without replacement.

(a) Complete the tree diagram on page 21

(3)

(b) Find the probability that exactly one of the beads selected is yellow.
Show your working.

(2)

(c) Find the probability that at least one of the beads selected is white.

(2)

Given that at least one of the beads selected is white,

(d) find the probability that both of the beads selected are white.

(2)

Riley adds some beads to the bag so it contains a total of n beads. The beads are either red or yellow or white such that

number of **red** beads : number of **yellow** beads : number of **white** beads = 4 : 3 : 1

Four beads are selected at random from the bag, one at a time without replacement.
The probability of getting 2 red beads, followed by a yellow bead, followed by a white bead is $\frac{3}{235}$

(e) Show that n satisfies the equation

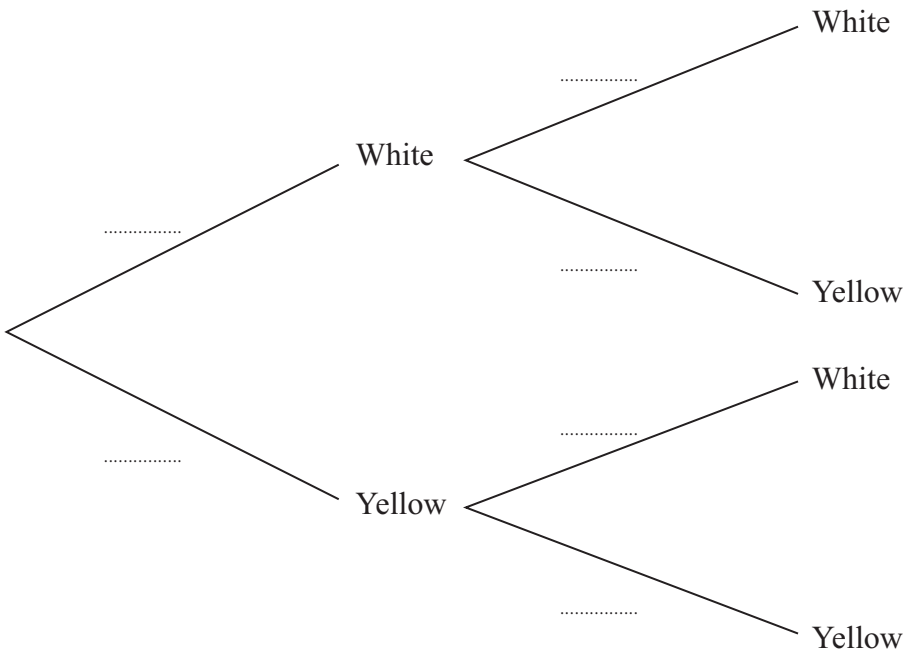
$$21n^2 + bn + c = 0$$

where b and c are integers to be found.

(4)

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Question 7 continued

Question 7 continued

(Total for Question 7 is 13 marks)

TOTAL FOR PAPER IS 75 MARKS

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