
(D) A bag contains 7 blue balls and 5 green balls. Another bag contains 4 blue balls and 6 red balls. A ball is drawn at random from the first bag and its colour is noted. A ball is then drawn at random from the second bag and its colour is noted.
(a) Complete the following tree diagram.

1st ball

(b) Calculate the probability that both balls are blue.

(c) Calculate the probability that at least one ball is blue.


$$
\begin{equation*}
\frac{42}{120}+\frac{20}{120}+\frac{28}{120}=\frac{90}{120} \tag{2}
\end{equation*}
$$

(2)


Vivienne has a fair cubical dice with its faces numbered from 1 to 6 and a biased dice for which the
probability of throwing a 4 is $\frac{1}{3}$. She throws the two dice and notes whether or not a 4 is obtained on each dice.
(a) Complete the following tree diagram.

(c) Calculate the probability that exactly one dice shows 4.


$$
\frac{2}{18}+\frac{5}{18}=\frac{z}{18}
$$

Alterative
Only combination without at learnt one blare in if Pint Green Aud $2^{\text {ad }}$ Red
So $P$ (at leastane blue) $=1-P(\text { Groonired })_{\text {Turnover. }}$

$$
=\frac{120}{120}-\frac{30}{120}=\frac{90}{120}
$$

Each lunchtime Paul either eats a packed lunch or he eats a sandwich bought in the snack bar．The probability that he eats a packed lunch is $\frac{3}{5}$ ．Whatever he eats for lunch the probability that he buys a mug of tea is $\frac{3}{10}$
（a）Complete the following tree diagram．

（4）
Two bags contain some coloured balls，which are identical except for their colour． One ball is taken at random from each bag and their colours noted．
The probability of the selected ball from the first bag being red is $\frac{1}{4}$ ．
The probability of the selected ball from the second bag NOT being red is $\frac{2}{3}$ ．
（a）Complete the following tree diagram．



Second bag
Red $\frac{1}{4} \times \frac{1}{3}=\frac{1}{12}$
（b）Calculate the probability that both balls are red．
$\frac{1}{4}, y=\frac{1}{3}=\frac{1}{12}$
（c）Calculate the probability that only one ball is red．
（FiRST Leo And 2n NAR）OR（First nat and 2 ad Red）

$$
=\frac{5}{12}
$$

A box contains coloured cubes identical except for their colour. The probability of choosing a red cube at random from the box is $\frac{5}{7}$. A bag also contains similar coloured cubes. The probability of choosing a red cube at random from the bag is $\frac{3}{5}$.
Chris takes a cube at random from the box and a cube at random from the bag.
(a) Complete the following tree diagram.

(b) Calculate the probability that neither of the chosen cubes is red.
$\frac{2}{4} \times \frac{2}{5}=\frac{4}{35} \times a+a+a$

A factory has two machines, A and B, which it uses to make large numbers of a certain item. Machine A is used to make $60 \%$ of the factory's total output and Machine B is used for the remainder. The probability that an item made on Machine $A$ is rejected is 0.1 . The probability that
an item made on Machine $B$ is rejected is 0.2 . an item made on Machine B is rejected is $\mathbf{0 - 2}$.
(a) Complete the following tree diagram.

[2]
(b) Calculate the probability that an item chosen at random is accepted
(MACHIN EA NO ACCEPTKO) OR (MACING B AND ACCEPTED)
$0.54+0.32=0.86$


