



Probability : Tree Diagrams - Edexcel Past Exam Questions

1. A company assembles drills using components from two sources. Goodbuy supplies 85% of the components and Amart supplies the rest. It is known that 3% of the components supplied by Goodbuy are faulty and 6% of those supplied by Amart are faulty.

(a) Represent this information on a tree diagram. (3)

An assembled drill is selected at random.

(b) Find the probability that it is not faulty. (3)

Jan 05 Q1

2. A bag contains 9 blue balls and 3 red balls. A ball is selected at random from the bag and its colour is recorded. The ball is not replaced. A second ball is selected at random and its colour is recorded.

(a) Draw a tree diagram to represent the information. (3)

Find the probability that

(b) the second ball selected is red, (2)

Jan 06 Q4 (edited)

3. In a factory, machines A , B and C are all producing metal rods of the same length. Machine A produces 35% of the rods, machine B produces 25% and the rest are produced by machine C . Of their production of rods, machines A , B and C produce 3%, 6% and 5% defective rods respectively.

(a) Draw a tree diagram to represent this information. (3)

(b) Find the probability that a randomly selected rod is

(i) produced by machine A and is defective,

(ii) is defective.

(5)

Jan 07 Q2 (edited)



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4. On a randomly chosen day the probability that Bill travels to school by car, by bicycle or on foot is $\frac{1}{2}$, $\frac{1}{6}$ and $\frac{1}{3}$ respectively. The probability of being late when using these methods of travel is $\frac{1}{5}$, $\frac{2}{5}$ and $\frac{1}{10}$ respectively.
- (a) Draw a tree diagram to represent this information. (3)
- (b) Find the probability that on a randomly chosen day
- (i) Bill travels by foot and is late,
- (ii) Bill is not late. (4)

June 09 Q2 (edited)

5. A jar contains 2 red, 1 blue and 1 green bead. Two beads are drawn at random from the jar without replacement.
- (a) Draw a tree diagram to illustrate all the possible outcomes and associated probabilities. State your probabilities clearly. (3)
- (b) Find the probability that a blue bead and a green bead are drawn from the jar. (2)

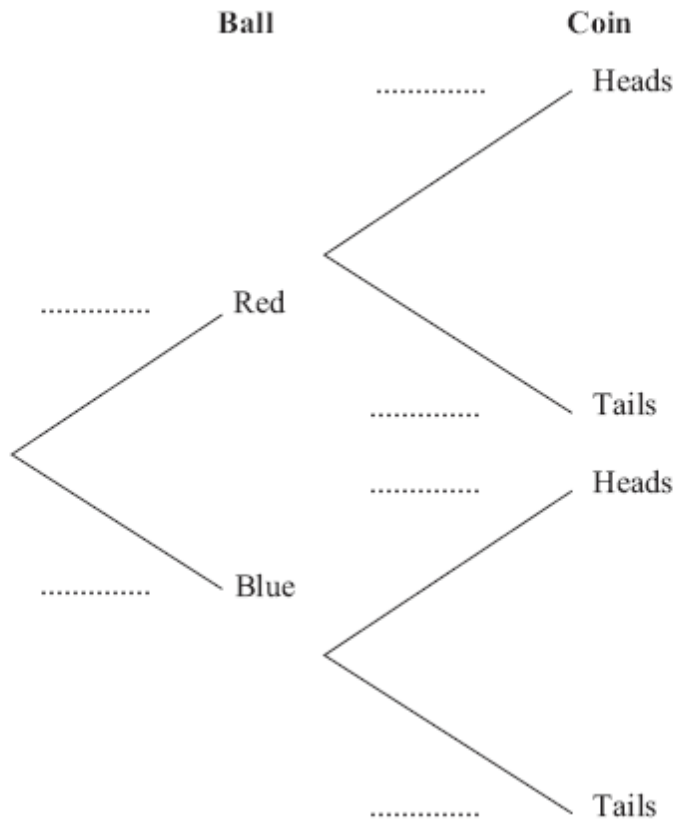
Jan 10 Q1

6. An experiment consists of selecting a ball from a bag and spinning a coin. The bag contains 5 red balls and 7 blue balls. A ball is selected at random from the bag, its colour is noted and then the ball is returned to the bag.

When a red ball is selected, a biased coin with probability $\frac{2}{3}$ of landing heads is spun.

When a blue ball is selected a fair coin is spun.

- (a) Copy and complete the tree diagram below to show the possible outcomes and associated probabilities.



(2)

Shivani selects a ball and spins the appropriate coin.

- (b) Find the probability that she obtains a head. (2)

Shivani and Tom each repeat this experiment.

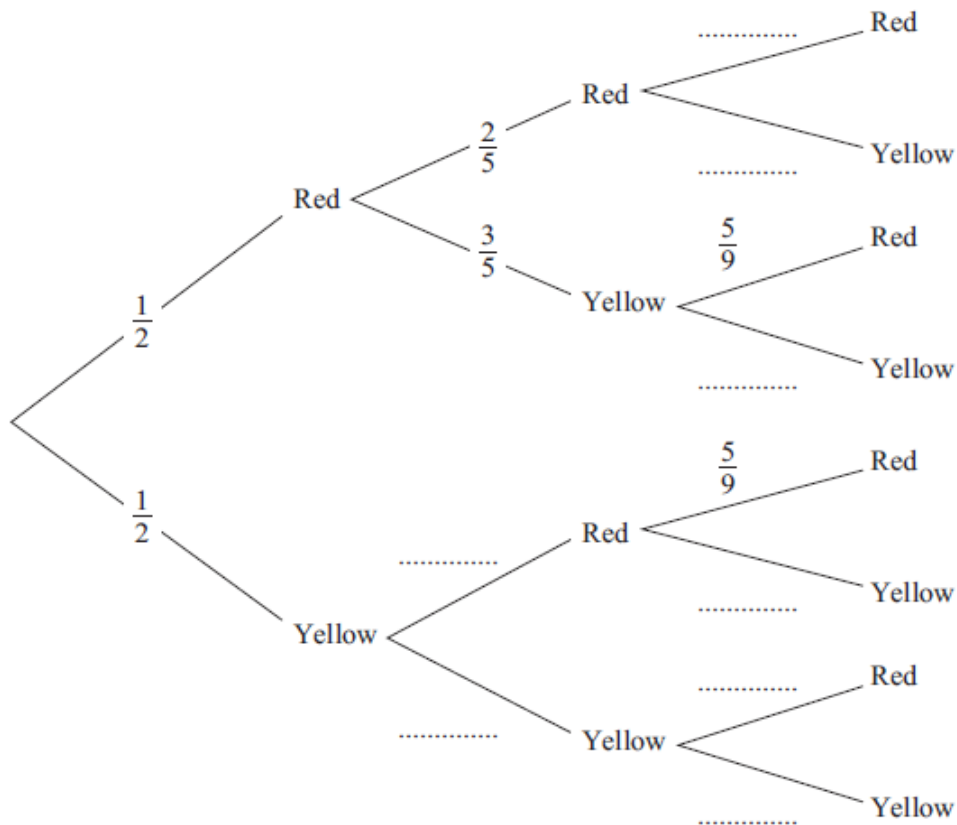
- (c) Find the probability that the colour of the ball Shivani selects is the same as the colour of the ball Tom selects. (3)

June 10 Q2(edited)

7. The bag P contains 6 balls of which 3 are red and 3 are yellow.
 The bag Q contains 7 balls of which 4 are red and 3 are yellow.
 A ball is drawn at random from bag P and placed in bag Q . A second ball is drawn at random from bag P and placed in bag Q .
 A third ball is then drawn at random from the 9 balls in bag Q .

The event A occurs when the 2 balls drawn from bag P are of the same colour.
 The event B occurs when the ball drawn from bag Q is red.

(a) Copy and complete the tree diagram shown below.



(4)

(b) Find $P(A)$.

(3)

(c) Show that $P(B) = \frac{5}{9}$.

(3)

(d) Show that $P(A \cap B) = \frac{2}{9}$.

(2)

(e) Hence find $P(A \cup B)$.

(2)