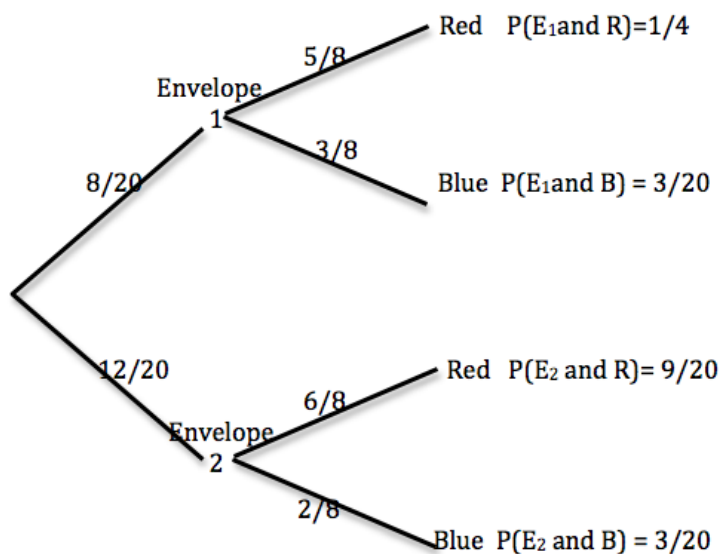


IF THIS THEN THAT

In front of you there are 20 envelopes.
Eight of the envelopes each contain 5 blue and 3 red sheets of paper.
The other 12 envelopes each contain 6 blue and 2 red sheets of paper.
You choose one envelope at random. Then you choose a sheet of paper from it at random. What is the probability that this sheet of paper is red?

SOLUTION



Draw a tree diagram and fill in the information.

The probability that the sheet chosen is red is $1/4 + 9/20 = 7/10$

NOTES FOR TEACHERS

Why do this activity?

This is a simple probability problem that gives learners practice in using tree diagrams. It could be introduced to review the idea of tree diagrams.

Intended learning outcomes

Practice in solving probability problems.

Possible approach

Importantly give the problem to the learners to read and to interpret for themselves individually to give them practice in interpreting and using the information that they are given as they are required to do in exams.

After half the learners have drawn a tree diagram and calculated an answer you could ask the learners to work with a partner to explain their reasoning, if necessary to help learners who are struggling, and also to check their working and answers. If there are then pairs of learners who are both still in difficulties you

could ask one learner from a pair who are confident about the problem to swop with one learner from the other pair and explain it to them.

Key questions

What is the probability that you will choose an envelope with 5 red and 3 blue?

What is the probability that you will choose an envelope with 2 red and 6 blue?

If you have chosen one sort of envelope rather than the other sort what difference does it make to the probability of choosing a sheet of red paper from it?

Possible extension

Next the class might go on to:

Same sweets <https://aiminghigh.aimssec.ac.za/grades-4-to-6-same-sweets/> which involves listing all the possible outcomes

Same Birth Month <https://aiminghigh.aimssec.ac.za/grades-7-to-9-same-birth-month/>

and Same Birthday <https://aiminghigh.aimssec.ac.za/grades-10-to-12-same-birthday/>

Possible support

Learners could try this activity first:

<https://aiminghigh.aimssec.ac.za/grades-9-to-12-in-the-bag/>