O Level E Maths Tutorial 18: Probability

Syllabus :

• probability as a measure of chance

• probability of single events (including listing all the possible outcomes in a simple chance situation to calculate the probability)

1. (i) If I toss a coin, what is the probability of getting a tail?

(ii) When I throw a die, what is the probability of getting a number that is more than 4?

• probability of simple combined events (including using possibility diagrams and tree diagrams, where appropriate)

- 2. A coin is tossed twice and the outcomes recorded.
 - (i) Complete this possibility diagram, using H for head and T for tail.

	Η	Т
Η	HH	
Т		

Figure 18-1

(ii) And this one. (This possibility diagram is also called a tree diagram. Is the reason obvious?)

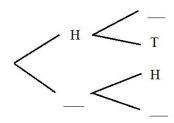


Figure 18-2

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3. A bag contains 6 blue balls and 4 red balls. Two balls are picked at random, one after another. This tree diagram shows the possible outcomes.

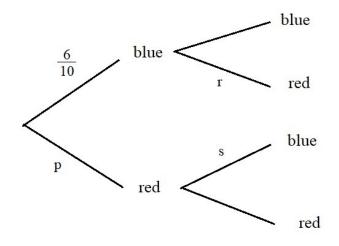


Figure 18-3

The number next to a line gives the probability of that outcome.

(i) r is the probability of picking a red ball when the first ball is blue. Find r.

(ii) p is the probability that the first ball is red, and s the probability that the second ball is blue. Find p and s.

(iii) What is the probability of picking a red ball followed by a blue ball?

• addition and multiplication of probabilities (mutually exclusive events and independent events)

4. (a) The probability that it would rain tomorrow is 1/3. The probability that it would rain the day after tomorrow is 1/4. Assuming that they are independent, what is the probability that it would rain tomorrow <u>and</u> the day after?

(b) The probability that I would go to the zoo tomorrow is 1/3. The probability that I would go to the bird park tomorrow is 1/4. Assuming that I can only go to one of them, what is the probability that I would go to the zoo <u>or</u> the bird park tomorrow?