

FURTHER PROBABILITY

Keywords: Event / Independent / Dependent / Conditional

Definition / Description:

Event: A particular result or set of results amongst the possibilities

Independent: events that have no impact on each other's results.

Dependent: events that have an impact on each other's results.

Conditional: the probability of an event (A), given that another (B) has already occurred

Knowledge points:

Tree diagrams Independent events: The outcome of the 1st event does not effect the probability of the 2nd event

Tree Diagrams Dependent events: The probability of the 2nd event is dependent on the outcome of the 1st event

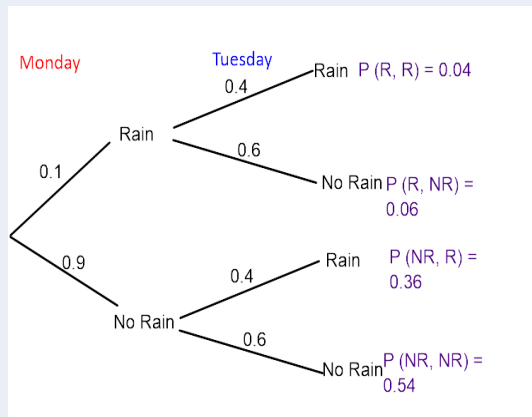
Conditional Probability: The probability of second event given the outcome of the first

Knowledge point examples:

The probability of it raining on Monday and Tuesday is shown in the tree diagram.

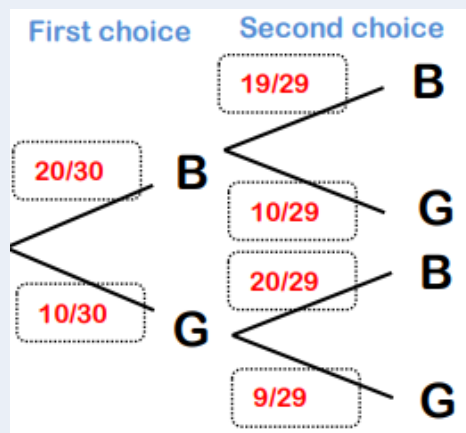
Find the probability it rains on both days: $P(RR) = 0.1 \times 0.4 = 0.04$

Find the probability it rains on one day: $P(NRR) + P(RNR) = 0.06 + 0.36 = 0.42$



There are 20 boys and 10 girls in a class. Two pupils are chosen at random. What is the probability that a girl and boy are chosen?

$$P(GB) + P(BG) = \left(\frac{10}{30} \times \frac{19}{29}\right) + \left(\frac{20}{30} \times \frac{10}{29}\right) = \frac{40}{87}$$



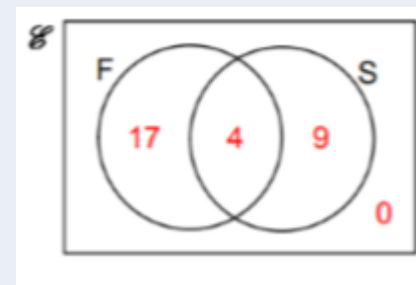
What is the probability of choosing a boy given they travel by car?

$$\frac{9}{13}$$

	Walk	Car	Total
Boys	16	9	25
Girls	18	4	22
Total	34	13	47

What is the probability that a student, given they study French, studies Spanish?

$$= \frac{17}{21}$$



Linked Knowledge Maps:

Basic Probability
Fractions
Ratio