Level 2 Functional Skills Maths Knowledge Organiser

Module 19 - Probability

Typically Non Calculator

Probability Scale

Probability means the likelihood of an event occurring.

Probabilities are always between 0 and 1.

Three ways to represent probabilities

Probabilities can be:

- Decimals
- Fractions
- Percentages

Calculating Probabilities

$$Probability = \frac{Number\ of\ Successes}{Total\ possible\ outcomes}$$

A fair 6 sided dice is rolled. What is the probability of getting a number bigger than 4?

Number of successes = 2
Number of possibilities = 6

$$Probability = \frac{2}{6} = \frac{1}{3}$$

Probabilities add up to 1

The probability of Tony and Nina winning their tennis match is 0.7. What is the probability of them not winning?

Probability of winning + Probability of not winning = 1

0.7 + Probability of not winning = 1

Probability of not winning $= 1 - 0.7 = 0.3$

Two-way tables

The table below shows information about people visiting a restaurant on a Saturday night.

	18-29	30-39	40-49	Total
Males		32	15	70
Females	20			
Total		39		100

You can systematically complete the table by subtracting known values from totals.

	18-29	30-39	40-49	Total
Males	23	32	15	70
Females	20	7	3	30
Total	43	39	18	100

You can use probability tables to find probabilities using the rule:

$$Probability = \frac{Number\ of\ Successes}{Total\ possible\ outcomes}$$

What is the probability a randomly chosen visitor is female?

$$\frac{30\ females}{100\ visitors} = \frac{3}{10}$$

What is the probability a randomly chosen male visitor is 18-29?

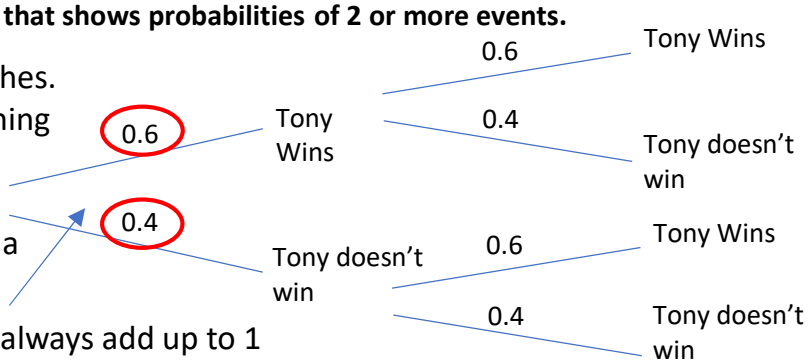
$$\frac{23\ males\ ages\ 18-29}{70\ male\ visitors} = \frac{23}{70}$$

Probability Trees

A diagram that shows probabilities of 2 or more events.

Tony Plays two tennis matches. The probability of him winning each match is 0.6.

This can be represented as a probability like this…



Each pair must always add up to 1

Remember

Multiply When going across the tree

Probability Tony wins both matches

$= 0.6 \times 0.6$
$= 0.36$