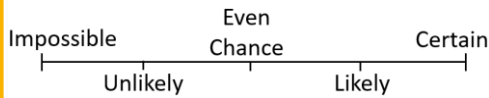


Year 8 Knowledge Organiser

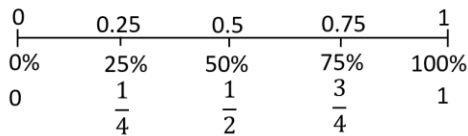
INTRODUCING PROBABILITY

Key Concept

Chance



Probability



Probabilities can be written as:

- Fractions
- Decimals
- Percentages



Clip Numbers

349 - 359

Key Words

Probability: The chance of something happening as a numerical value.

Impossible: The outcome cannot happen.

Certain: The outcome will definitely happen.

Even chance: There are two different outcomes each with the same chance of happening.

Expectation: The amount of times you expect an outcome to happen based on probability.

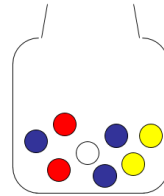
Tip

Probabilities always add up to 1.

Formula

Expectation
= Probability \times no. of trials

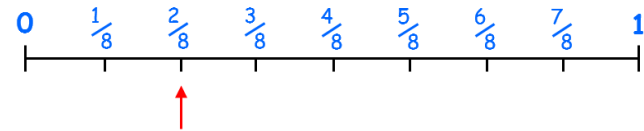
Examples



1) What is the probability that a bead chosen will be **yellow**. Show the answer on a number line.

$$\text{Probability} = \frac{\text{Number of favourable outcomes}}{\text{Total number of outcomes}}$$

$$P(\text{Yellow}) = \frac{2}{8} = \frac{1}{4}$$



2) How many **yellow** beads would you **expect** if you pulled a bead out and replaced it 40 times?

$$\frac{1}{4} \times 40 = \frac{1}{4} \text{ of } 40 = 10$$

Questions

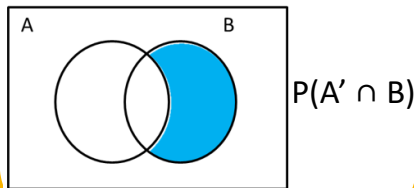
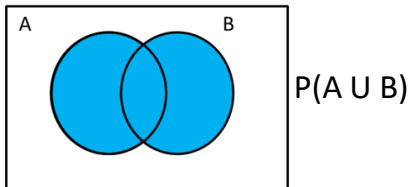
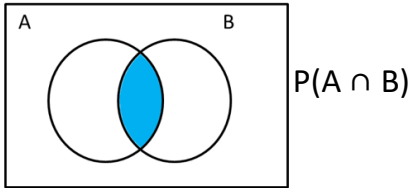
In a bag of skittles there are 12 red, 9 yellow, 6 blue and 3 purple left. Find: a) P(Red) b) P(Yellow) c) P(Red or purple) d) P(Green)

ANSWERS: 1) a) $\frac{12}{30} = \frac{2}{5}$ b) $\frac{9}{30} = \frac{3}{10}$ c) $\frac{10}{30} = \frac{1}{3}$ d) $\frac{3}{30} = \frac{1}{10}$

Year 8 Knowledge Organiser

FURTHER PROBABILITY

Key Concept



Key Words

Probability: The chance of something happening as a numerical value.

Impossible: The outcome cannot happen.

Certain: The outcome will definitely happen.

Even chance: There are two different outcomes each with the same chance of happening.

Mutually Exclusive: Two events that cannot both occur at the same time.

Formula

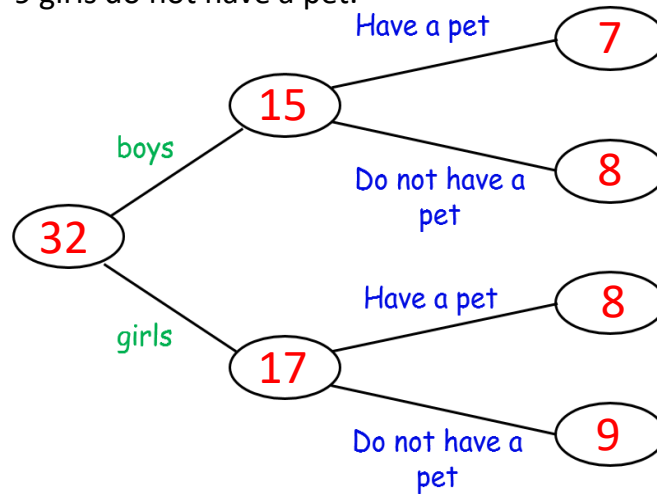
$$P(A \cap B) = P(A) \times P(B)$$

$$P(A \cup B) = P(A) + P(B)$$

or (non ME) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

Examples

In Hannah's class there are 32 students.
15 of these students are boys.
7 of the boys have a pet.
9 girls do not have a pet.



$$P(\text{boy}) = \frac{15}{32}$$

$$P(\text{Girl with pet}) = \frac{8}{32}$$

hegartymaths
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422-424

Questions

- 1) Draw a two-way table for the question above.
- 2) Find the probability that a pupil chosen is a boy with no pets.
- 3) A girl is chosen, what is the probability she has a pet?

ANSWERS: 2) $\frac{32}{8}$ 3) $\frac{17}{8}$