Probability of One Event

Starter

1. Write down the first ten: (a) prime numbers (b) square numbers.

2. A number between 1 and 30 inclusive is chosen at random. Write down the probability of getting:
   (a) a prime number (b) a square number

3. The probability of rain tomorrow is $\frac{2}{5}$. What is the probability of it not raining?

Notes

From previous lessons:

$$\text{Probability of an event} = \frac{\text{Number of ways the event can happen}}{\text{Total number of outcomes}}$$

$$\text{Probability of an event happening} = 1 - \text{Probability of the event not happening}$$

Key information

Pack of cards:

- 52 cards
- 4 suits
- 2 red suits — diamonds, hearts
- 2 black suits — clubs, spades
- 13 cards in each suit
- 3 picture cards — king, queen, jack
- 4 honour cards — ace, king, queen, jack

Factor — a number that divides exactly into another number without leaving a remainder.
E.g. the factors of 12 are 1, 2, 3, 4, 6 and 12

Multiples — numbers in a time table
E.g. the multiples of 6 are 6, 12, 18, 24,…

E.g. 1 A bag contains 4 blue, 5 red and 7 green discs. Find the probability of:
(a) choosing a blue disc
(b) not choosing a green disc.

E.g. 2 Bag A has 3 red and 5 blue cubes in. Bag B has 8 red and 11 blue cubes in. A red cube is taken out of Bag A and put in Bag B. What is the probability now of taking a red cube out of Bag B?

E.g. 3* Jill has 2 bags containing blue and red cubes. Bag A has 14 blue and n red cubes. Bag B has n blue cubes and 30 red cubes. Two blue cubes are taken from Bag A and placed into Bag B. Given that the original probability of choosing a red cube from Bag B is $\frac{5}{8}$, show that the probability of picking a blue cube is now the same for both bags.

Video: Probability of One Event

Solutions to Starter and E.g.s

Exercise

9-1 class textbook:	p234 M8.2 Qu 1-15 odd
A*-G class textbook:	p204 M8.2 Qu 1-15 odd
9-1 homework book:	p78 M8.2 Qu 1-10
A*-G homework book:	p56 M8.2 Qu 1-10

Summary

$$\text{Probability of an event} = \frac{\text{Number of ways the event can happen}}{\text{Total number of outcomes}}$$

$$\text{Probability of an event happening} = 1 - \text{Probability of the event not happening}$$

Homework book answers (only available during a lockdown)