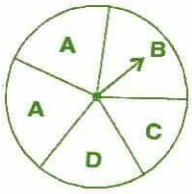
Exercise 5.3

Question 1:



List the outcomes you can see in these experiments.

(a) Spinning a wheel

(b) Tossing two coins together

Answer 1:

(a) There are four letters A, B, C and D in a spinning wheel. So there are 4 outcomes.

(b) When two coins are tossed together. There are four possible outcomes HH, HT, TH, TT.

(Here HT means head on first coin and tail on second coin and so on.)

Question 2:

When a die is thrown, list the outcomes of an event of getting:

(i) (a) a prime number (b) not a prime number

(ii) (a) a number greater than 5 (b) a number not greater than 5

Answer 2:

(i) (a) Outcomes of event of getting a prime number are 2, 3 and 5.

(b) Outcomes of event of not getting a prime number are 1, 4 and 6.

(ii) (a) Outcomes of event of getting a number greater than 5 is 6.

(b) Outcomes of event of not getting a number greater than 5 are 1, 2, 3, 4 and 5.

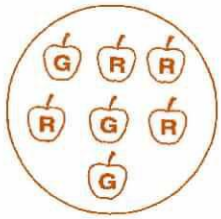
Question 3:

Find the:

(a) Probability of the pointer stopping on D in (Question 1 (a)).

(b) Probability of getting an ace from a well shuffled deck of 52 playing cards.

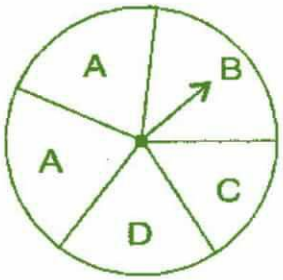
(c) Probability of getting a red apple. (See figure below)



Answer 3:

(a) In a spinning wheel, there are five pointers A, A, B, C, D. So there are five outcomes. Pointer stops at D which is one outcome.

So the probability of the pointer stopping on D = $\frac{1}{5}$



(b) There are 4 aces in a deck of 52 playing cards. So, there are four events of getting an ace.

So, probability of getting an ace = $\frac{4}{42} = \frac{1}{4}$

(c) Total number of apples = 7

Number of red apples = 4

Probability of getting red apple = $\frac{4}{7}$

Question 4:

Numbers 1 to 10 are written on ten separate slips (one number on one slip), kept in a box and mixed well. One slip is chosen from the box without looking into it. What is the probability of:

(i) getting a number 6.

(ii) getting a number less than 6.
(iii) getting a number greater than 6.
(iv) getting a 1-digit number.

Answer 4:

(i) Outcome of getting a number 6 from ten separate slips is one.

Therefore, probability of getting a number 6 = $\frac{1}{10}$

(ii) Numbers less than 6 are 1, 2, 3, 4 and 5 which are five. So there are 5 outcomes.

Therefore, probability of getting a number less than 6 = $\frac{5}{10} = \frac{1}{2}$

(iii) Number greater than 6 out of ten that are 7, 8, 9, 10. So there are 4 possible outcomes.

Therefore, probability of getting a number greater than 6 = $\frac{4}{10} = \frac{2}{5}$

(iv) One digit numbers are 1, 2, 3, 4, 5, 6, 7, 8, 9 out of ten.

Therefore, probability of getting a 1-digit number = $\frac{9}{10}$

Question 5:

If you have a spinning wheel with 3 green sectors, 1 blue sector and 1 red sector, what is the probability of getting a green sector? What is the probability of getting a none-blue sector?

Answer 5:

There are five sectors. Three sectors are green out of five sectors.

Therefore, probability of getting a green sector = $\frac{3}{5}$

There is one blue sector out of five sectors. Non-blue sectors = 5 – 1 = 4 sectors

Therefore, probability of getting a non-blue sector = $\frac{4}{5}$

Question 6:

Find the probability of the events given in Question 2.

Answer 6:

When a die is thrown, there are total six outcomes, i.e., 1, 2, 3, 4, 5 and 6.

(i) (a) 2, 3, 5 are prime numbers. So there are 3 outcomes out of 6.

Therefore, probability of getting a prime number = $\frac{3}{6} = \frac{1}{2}$

(b) 1, 4, 6 are not the prime numbers. So there are 3 outcomes out of 6.

Therefore, probability of getting a prime number = $\frac{3}{6} = \frac{1}{2}$

(ii) (a) Only 6 is greater than 5. So there is one outcome out of 6.

Therefore, probability of getting a number greater than 5 = $\frac{1}{6}$

(b) Numbers not greater than 5 are 1, 2, 3, 4 and 5. So there are 5 outcomes out of 6.

Therefore, probability of not getting a number greater than 5 = $\frac{5}{6}$