

Exercise 5.3

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- List the outcomes you can see in these experiments.
(a) Spinning a wheel (b) Tossing two coins together



Solution:

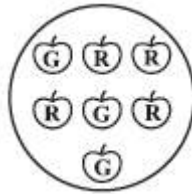
- There are four letters A, B, C and D in a spinning wheel. So there are 4 outcomes.
- When two coins are tossed together. There are four possible outcomes HH, HT, TH, TT.

- 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.

Solution:

- Outcomes of event of getting a prime number are 2, 3 and 5.
 - Outcomes of event of not getting a prime number are 1, 4 and 6.
- Outcomes of event of getting a number greater than 5 is 6.
 - Outcomes of event of not getting a number greater than 5 are 1, 2, 3, 4 and 5.

- 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)



Solution:

- 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 = $\frac{1}{5}$
- 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 = $\frac{4}{52} = \frac{1}{13}$
- Total number of apples = 7

Number of red apples = 4

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

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?

Solution:

(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 = $\frac{9}{10}$

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 non-blue sector?

Solution:

A total of five sectors are present.

Out of the five sectors, three sectors are green.

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

Out of the five sectors, one sector is blue.

Hence, Non-blue sectors = $5 - 1 = 4$ sectors

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

6. Find the probabilities of the events given in Question 2.**Solution:**

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 the prime numbers.

So there are 3 outcomes out of 6.

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

(b) 1, 4, 6 are not the prime numbers.

So there are 3 outcomes out of 6.

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

(ii)

(c) Only 6 is greater than 5.

So there is one outcome out of 6.

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

(d) Numbers not greater than 5 are 1, 2, 3, 4 and 5.

So there are 5 outcomes out of 6.

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