



Exercise 15.1

**Ans.** Total number of marbles in the box =  $5 + 8 + 4$   
= 17

∴ Total number of elementary events = 17

(i) There are 5 red marbles in the box.

∴ Favourable number of elementary events = 5

∴  $P(\text{getting a red marble}) = \frac{5}{17}$

(ii) There are 8 white marbles in the box.

∴ Favourable number of elementary events = 8

∴  $P(\text{getting a white marble}) = \frac{8}{17}$

(iii) There are  $5 + 8 = 13$  marbles in the box, which are not green.

∴ Favourable number of elementary events = 13

∴  $P(\text{not getting a green marble}) = \frac{13}{17}$

**Q10.** A piggy bank contains hundred 50 p coins, fifty Re. 1 coins, twenty Rs. 2 coins and ten Rs. 5 coins. If it is equally likely that of the coins will fall out when the bank is turned upside down, what is the probability that the coin:

(i) will be a 50 p coin?

(ii) will not be a Rs. 5 coin?

**Ans.** Total number of coins in a piggy bank =  $100 + 50 + 20 + 10 = 180$

∴ Total number of elementary events = 180

(i) There are one hundred 50 coins in the piggy bank.

$\therefore$  Favourable number of elementary events = 100

$$\therefore P(\text{falling out of a 50 p coin}) = \frac{100}{180} = \frac{5}{9}$$

(ii) There are  $100 + 50 + 20 = 170$  coins other than Rs. 5 coin.

$\therefore$  Favourable number of elementary events = 170

$$\therefore P(\text{falling out of a coin other than Rs. 5 coin}) = \frac{170}{180} = \frac{17}{18}$$

**Q11.** Gopi buys a fish from a shop for his aquarium. The shopkeeper takes out one fish at random from a tank containing 5 male fishes and 8 female fishes (see figure). What is the probability that the fish taken out is a male fish?



**Ans.** Total number of fish in the tank =  $5 + 8 = 13$

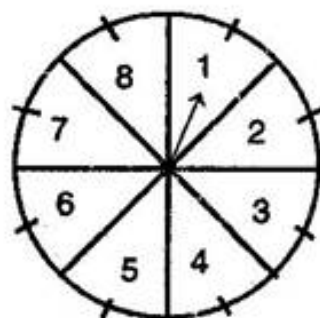
$\therefore$  Total number of elementary events = 13

There are 5 male fishes in the tank.

$\therefore$  Favourable number of elementary events = 5

$$\text{Hence, } P(\text{taking out a male fish}) = \frac{5}{13}$$

**Q12.** A game of chance consists of spinning an arrow which comes to rest pointing at one of the numbers 1, 2, 3, 4, 5, 6, 7, 8 (see figure) and these are equally likely outcomes. What is the probability that it will point at:



- (i) 8?
- (ii) an odd number?
- (iii) a number greater than 2?
- (iv) a number less than 9?

**Ans.** Out of 8 numbers, an arrow can point any of the numbers in 8 ways.

∴ Total number of favourable outcomes = 8

(i) Favourable number of outcomes = 1

Hence,  $P(\text{arrow points at } 8) = \frac{1}{8}$

(ii) Favourable number of outcomes = 4

Hence,  $P(\text{arrow points at an odd number}) = \frac{4}{8} = \frac{1}{2}$

(iii) Favourable number of outcomes = 6

Hence,  $P(\text{arrow points at a number } > 2) = \frac{6}{8} = \frac{3}{4}$

(iv) Favourable number of outcomes = 8

$$\text{Hence, } P(\text{arrow points at a number} < 9) = \frac{8}{8} = 1$$

**Q13.** A dice is thrown once. Find the probability of getting:

(i) a prime number.

(ii) a number lying between 2 and 6.

(iii) an odd number.

**Ans.** Total number of favourable outcomes of throwing a dice = 6

(i) On a dice, the prime numbers are 2, 3 and 5.

Therefore, favourable outcomes = 3

$$\text{Hence } P(\text{getting a prime number}) = \frac{3}{6} = \frac{1}{2}$$

(ii) On a dice, the number lying between 2 and 6 are 3, 4, 5.

Therefore, favourable outcomes = 3

$$\text{Hence } P(\text{getting a number lying between 2 and 6}) = \frac{3}{6} = \frac{1}{2}$$

(iii) On a dice, the odd numbers are 1, 3 and 5.

Therefore, favourable outcomes = 3

$$\text{Hence } P(\text{getting an odd number}) = \frac{3}{6} = \frac{1}{2}$$

**Q14.** One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting:

- (i) a king of red colour
- (ii) a face card
- (iii) a red face card
- (iv) the jack of hearts
- (v) a spade
- (vi) the queen of diamonds.

**Ans.** Total number of favourable outcomes = 52

**(i)** There are two suits of red cards, i.e., diamond and heart. Each suit contains one king.

∴ Favourable outcomes = 1

$$\text{Hence, } P(\text{a king of red colour}) = \frac{2}{52} = \frac{1}{26}$$

**(ii)** There are 12 face cards in a pack.

∴ Favourable outcomes = 12

$$\text{Hence, } P(\text{a face card}) = \frac{12}{52} = \frac{3}{13}$$

**(iii)** There are two suits of red cards, i.e., diamond and heart. Each suit contains 3 face cards.

∴ Favourable outcomes =  $2 \times 3 = 6$

$$\text{Hence, } P(\text{a red face card}) = \frac{6}{52} = \frac{3}{26}$$

**(iv)** There are only one jack of heart.

∴ Favourable outcome = 1

$$\text{Hence, } P(\text{the jack of hearts}) = \frac{1}{52}$$

\*\*\*\*\* END \*\*\*\*\*