EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Probability

Grade : CBSE Grade IX



1. In a lottery, there are 11 prizes and 17 blanks. What is the probability of not getting a prize?

   (i) $\frac{17}{28}$ (ii) $\frac{18}{29}$ (iii) $\frac{11}{28}$ (iv) $\frac{4}{7}$ (v) $\frac{9}{14}$

2. If $P(E) = 0.22$, find $P(\bar{E})$

   (i) 1.78 (ii) 8.78 (iii) 7.78 (iv) 0.78 (v) 2.78

3. Two players Roja and Fathima play a tennis match. It is known that the probability of Roja winning the match is 0.50. What is the probability of Fathima winning the match?

   (i) $\frac{1}{2}$ (ii) $\frac{4}{5}$ (iii) $\frac{3}{4}$ (iv) $\frac{2}{3}$ (v) $\frac{5}{6}$

4. There are 50 students in a class room of whom 20 are boys and 30 are girls. From these students, one is choosen at random. What is the probability that the choosen student is a girl ?

   (i) $\frac{2}{3}$ (ii) $\frac{3}{5}$ (iii) $\frac{2}{5}$ (iv) $\frac{4}{5}$

5. Three coins are tossed simultaneously 215 times with the following frequencies of different outcomes :

| **Outcome** | 3 heads | 2 heads | 1 heads | No heads |
|---|---|---|---|---|
| **Frequency** | 25 | 35 | 75 | 80 |

   If the three coins are simultaneously tossed again, compute the probability of '1 heads' coming up.

   (i) $\frac{14}{43}$ (ii) $\frac{15}{43}$ (iii) $\frac{4}{11}$ (iv) $\frac{28}{43}$ (v) $\frac{16}{43}$

6. Two coins are tossed simultaneously 130 times and it was observed that both tails appeared 120 times. If two coins are tossed simultaneously at random, what is the probability of getting both tails?

   (i) 1 (ii) $\frac{11}{13}$ (iii) $\frac{12}{13}$ (iv) $\frac{13}{14}$ (v) $\frac{1}{13}$

7. Two coins are tossed simultaneously 120 times and it was observed that both heads appeared 60 times. If two coins are tossed simultaneously at random, what is the probability of getting both heads?

   (i) $\frac{1}{2}$ (ii) $\frac{5}{6}$ (iii) $\frac{4}{5}$ (iv) $\frac{3}{4}$ (v) $\frac{2}{3}$

8. A die is thrown 400 times. The number 6 appears on the upper face 80 times. Now the die is thrown at random. What is the probability of getting a 6 ?

   (i) $\frac{1}{5}$ (ii) 0 (iii) $\frac{4}{5}$ (iv) $\frac{1}{3}$ (v) $\frac{2}{5}$

9. On a particular day, at a crossing in a city, the various types of 120 vehicles going past during a time-interval were observed as under:

| **Type of Vehicle** | Four-wheeler | Two-wheeler | Three-wheeler |
|---|---|---|---|
| **Frequency** | 30 | 40 | 50 |

Out of these vehicles, if one is choosen at random, what is the probability that the choosen vehicle is a 'Two-wheeler' ?

(i) $\frac{2}{3}$ (ii) 0 (iii) $\frac{1}{3}$ (iv) $\frac{1}{2}$

10. Which of the following are true?

a) The probability of a sure event is 1
b) For an event E, we have $0 \leq P(E) \leq 1$
c) The probability of an impossible event is 1
d) The probability of an imposible event can be > 1
e) The probability of an unsure event is 0

(i) {e,c,a} (ii) {d,b,a} (iii) {d,b} (iv) {a,b} (v) {c,a}

11. The distances (in km) of engineers from their residence to their place of work were found as follows

20 14 18 15 15 17 5 23 17 15 24 28

What is the empirical probability that an engineer lives less than 15 km from her place of work?

(i) $\frac{2}{7}$ (ii) 0 (iii) $\frac{1}{6}$ (iv) $\frac{5}{6}$ (v) $\frac{1}{3}$

12. In a lottery, there are 14 prizes and 10 blanks. What is the probability of getting a prize?

(i) $\frac{7}{12}$ (ii) $\frac{1}{2}$ (iii) $\frac{2}{3}$ (iv) $\frac{5}{12}$ (v) $\frac{8}{13}$

13. A die is thrown 80 times. Prime numbers appeared on the upper face 20 times. If a die is thrown at random, what is the probability of getting a prime number?

(i) 0 (ii) $\frac{1}{2}$ (iii) $\frac{2}{5}$ (iv) $\frac{1}{4}$ (v) $\frac{3}{4}$

14. A coin is tossed 80 times and head appears 25 times. If the coin is tossed again, what is the probability of getting a tail?

(i) $\frac{3}{4}$ (ii) $\frac{12}{17}$ (iii) $\frac{5}{8}$ (iv) $\frac{5}{16}$ (v) $\frac{11}{16}$

15. A die is thrown 455 times with the frequencies for outcomes 1, 2, 3, 4, 5 and 6 as given in the following table

| **Outcome** | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| **Frequency** | 35 | 45 | 80 | 90 | 95 | 110 |

If the die is thrown again randomly, find the probability of getting 1 as outcome.

(i) $\frac{1}{13}$ (ii) $\frac{12}{13}$ (iii) $\frac{1}{7}$ (iv) $\frac{2}{13}$ (v) 0

16. 243 families with 2 children were selected randomly, and the following data were recorded

| **No. of girls in a family** | 0 | 1 | 2 |
|---|---|---|---|
| **Number of families** | 63 | 72 | 108 |

Compute the probability of the family, chosen at random, having 2 girls.

(i) $\frac{5}{9}$ (ii) $\frac{1}{3}$ (iii) $\frac{1}{2}$ (iv) $\frac{4}{9}$

17. Which of the following are true?

a) $P(E) = 1 - P(\overline{E})$

b) $P(E) - P(\text{not } E) = 0$

c) $P(E) + P(\text{not } E) = 1$

d) $P(E) - P(\overline{E}) = 0$

e) $P(E) + P(\overline{E}) = 0$

(i) {a,c} (ii) {e,b,a} (iii) {d,c,a} (iv) {d,c} (v) {b,a}

18. The following table shows the blood-groups of 297 students of a class.

| **Blood group** | O | A | B | AB |
|---|---|---|---|---|
| **Number of students** | 54 | 63 | 81 | 99 |

One student of the class is choosen at random. What is the probability that the choosen student has blood group 'A' ?

(i) $\frac{26}{33}$ (ii) $\frac{8}{33}$ (iii) $\frac{4}{17}$ (iv) $\frac{2}{11}$ (v) $\frac{7}{33}$

19. 216 families with 2 children were selected randomly, and the following data were recorded

| **No. of girls in a family** | 0 | 1 | 2 |
|---|---|---|---|
| **Number of families** | 45 | 81 | 90 |

Compute the probability of the family, chosen at random, having 2 girls.

(i) $\frac{5}{12}$ (ii) $\frac{1}{3}$ (iii) $\frac{1}{2}$ (iv) $\frac{7}{12}$ (v) $\frac{6}{13}$

20. The distances (in km) of engineers from their residence to their place of work were found as follows

18 26 8 12 2 6 3 17 8 22 15 30 2 13

What is the empirical probability that an engineer lives greater than 6 km from her place of work?

(i) $\frac{6}{7}$ (ii) $\frac{4}{7}$ (iii) $\frac{2}{7}$ (iv) $\frac{5}{7}$ (v) $\frac{3}{4}$

21. There are 70 students in a class room of whom 38 are boys and 32 are girls. From these students, one is choosen at random. What is the probability that the choosen student is a boy ?

(i) $\frac{18}{35}$ (ii) $\frac{19}{35}$ (iii) $\frac{16}{35}$ (iv) $\frac{4}{7}$ (v) $\frac{5}{9}$

22. Which of the following are possible values of probability?

a) $\frac{8}{7}$
b) 5
c) -3
d) 0.78
e) $\frac{4}{7}$

(i) {b,e,d} (ii) {b,e} (iii) {d,e} (iv) {a,d} (v) {c,a,d}

23. Which of the following experiments have equally likely outcomes?

a) A man starts his vehicle. It starts or it does not starts
b) A baby is born. It is a boy or girl
c) A man throws a die. The number on the top is either 1 or not 1
d) A true/false question is attempted. The answer is either right or wrong
e) A ball is hit. It reaches the boundary or not

(i) {c,d} (ii) {e,a,b} (iii) {a,b} (iv) {b,d} (v) {c,d,b}

24. A survey of 150 men showed that only 20 of them know Spanish. Out of these men, if one is selected at random, what is the probability that the selected man knows Spanish?

(i) $\frac{1}{15}$ (ii) $\frac{13}{15}$ (iii) $\frac{2}{15}$ (iv) $\frac{3}{16}$ (v) $\frac{1}{5}$

25. A coin is tossed 100 times and tail appears 80 times. If the coin is tossed again, what is the probability of getting a head?

(i) $\frac{4}{5}$ (ii) $\frac{1}{5}$ (iii) $\frac{2}{5}$ (iv) 0 (v) $\frac{1}{3}$

## Assignment Key

| | | | | | |
|---|---|---|---|---|---|
| 1) (i) | 2) (iv) | 3) (i) | 4) (ii) | 5) (ii) | 6) (iii) |
| 7) (i) | 8) (i) | 9) (iii) | 10) (iv) | 11) (iii) | 12) (i) |
| 13) (iv) | 14) (v) | 15) (i) | 16) (iv) | 17) (i) | 18) (v) |
| 19) (i) | 20) (iv) | 21) (ii) | 22) (iii) | 23) (iv) | 24) (iii) |
| 25) (ii) | | | | | |