EduSahara™ Assignment

Name : Probability

Chapter : Probability

Grade : SSC Grade IX

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1. A coin is tossed 90 times and tail appears 40 times. If the coin is tossed again, what is the probability of getting a head?

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

2. A coin is tossed 70 times and head appears 55 times. If the coin is tossed again, what is the probability of getting a tail?

(i) $\frac{3}{14}$ (ii) $\frac{1}{7}$ (iii) $\frac{11}{14}$ (iv) $\frac{2}{7}$ (v) $\frac{4}{15}$

3. Two coins are tossed simultaneously 150 times and it was observed that both heads appeared 130 times. If two coins are tossed simultaneously at random, what is the probability of getting both heads?

(i) $\frac{4}{5}$ (ii) $\frac{2}{15}$ (iii) $\frac{7}{8}$ (iv) $\frac{14}{15}$ (v) $\frac{13}{15}$

4. Two coins are tossed simultaneously 150 times and it was observed that both tails appeared 95 times. If two coins are tossed simultaneously at random, what is the probability of getting both tails?

(i) $\frac{20}{31}$ (ii) $\frac{2}{3}$ (iii) $\frac{19}{30}$ (iv) $\frac{3}{5}$ (v) $\frac{11}{30}$

5. A die is thrown 60 times. Prime numbers appeared on the upper face 30 times. If a die is thrown at random, what is the probability of getting a prime number?

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

6. A survey of 80 men showed that only 40 of them know Telugu. Out of these men, if one is selected at random, what is the probability that the selected man knows Telugu?

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

7. On a particular day, at a crossing in a city, the various types of 105 vehicles going past during a time-interval were observed as under:

| **Type of Vehicle** | Four-wheeler | Two-wheeler | Three-wheeler |
|---|---|---|---|
| **Frequency** | 25 | 30 | 50 |

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

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

8. The following table shows the blood-groups of 333 students of a class.

| **Blood group** | O | A | B | AB |
|---|---|---|---|---|
| **Number of students** | 54 | 63 | 99 | 117 |

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

(i) $\frac{14}{37}$ (ii) $\frac{13}{37}$ (iii) $\frac{12}{37}$ (iv) $\frac{24}{37}$ (v) $\frac{7}{19}$

9. A single unbiased coin is tossed. Find the probability of getting a head.

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

10. Two unbiased coins are tossed simultaneously. Find the probability of getting exactly one head.

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

11. Two unbiased coins are tossed simultaneously. Find the probability of getting at least one head.

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

12. Two unbiased coins are tossed simultaneously. Find the probability of getting at least two heads.

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

13. Two unbiased coins are tossed simultaneously. Find the probability of getting at most one head.

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

14. Two unbiased coins are tossed simultaneously. Find the probability of getting no head.

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

15. Three unbiased coins are tossed simultaneously. Find the probability of getting exactly one head.

(i) $\frac{1}{2}$ (ii) $\frac{5}{8}$ (iii) $\frac{3}{8}$ (iv) $\frac{4}{9}$ (v) $\frac{1}{4}$

16. Three unbiased coins are tossed simultaneously. Find the probability of getting at least one head.

(i) $\frac{3}{4}$ (ii) $\frac{8}{9}$ (iii) 1 (iv) $\frac{1}{8}$ (v) $\frac{7}{8}$

17. Three unbiased coins are tossed simultaneously. Find the probability of getting at least two heads.

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

18. Three unbiased coins are tossed simultaneously. Find the probability of getting at most one head.

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

19. Three unbiased coins are tossed simultaneously. Find the probability of getting no head.

(i) $\frac{1}{8}$ (ii) 0 (iii) $\frac{1}{4}$ (iv) $\frac{2}{9}$ (v) $\frac{7}{8}$

20. What is the probability of a sure event?

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

21. What is the probability of an impossible event?

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

22. There are 68 students in a class room of whom 30 are boys and 38 are girls. From these students, one is choosen at random. What is the probability that the choosen student is a boy ?

(i) $\frac{7}{17}$ (ii) $\frac{16}{35}$ (iii) $\frac{19}{34}$ (iv) $\frac{8}{17}$ (v) $\frac{15}{34}$

23. There are 44 students in a class room of whom 24 are boys and 20 are girls. From these students, one is choosen at random. What is the probability that the choosen student is a girl ?

(i) $\frac{1}{2}$ (ii) $\frac{4}{11}$ (iii) $\frac{5}{11}$ (iv) $\frac{6}{11}$

24. Which of the following are true?

a) If the probability is too less, it will become negative
b) Probability of getting 101 marks out of 100 is 1.01
c) The probability of an event that is very likely to happen is 1
d) The probability of an event that cannot happen is unknown
e) If the probability of failing the exam is 0.14, the probability of passing the exam is 0.86

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

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

a) A man starts his vehicle. It starts or it does not starts
b) A man throws a die. The number on the top is either 6 or not 6
c) A ball is hit. It reaches the boundary or not
d) A true/false question is attempted. The answer is either right or wrong
e) A baby is born. It is a boy or girl

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

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

a) $\frac{3}{4}$
b) 0.67
c) 5
d) -5.3
e) $\frac{7}{4}$

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

27. If $P(E) = 0.44$, find $P(\bar{E})$

(i) 7.56 (ii) 8.56 (iii) 1.56 (iv) 0.56 (v) 2.56

28. Which of the following are true?

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

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

29. Which of the following are true?

a) P(E) + P(not E) = 1
b) $P(E) - P(\bar{E}) = 0$
c) $P(E) = 1 - P(\bar{E})$
d) $P(E) + P(\bar{E}) = 0$
e) P(E) - P(not E) = 0

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

30. A die is thrown 360 times. The number 2 appears on the upper face 70 times. Now the die is thrown at random. What is the probability of getting a 2 ?

(i) $\frac{2}{9}$ (ii) $\frac{8}{37}$ (iii) $\frac{29}{36}$ (iv) $\frac{7}{36}$ (v) $\frac{1}{6}$

31. 297 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** | 72 | 99 | 126 |

Compute the probability of the family, chosen at random, having 1 girl.

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

32. Three coins are tossed simultaneously 220 times with the following frequencies of different outcomes :

| **Outcome** | 3 heads | 2 heads | 1 heads | No heads |
|---|---|---|---|---|
| **Frequency** | 45 | 50 | 55 | 70 |

If the three coins are simultaneously tossed again, compute the probability of '3 heads' coming up.

(i) $\frac{5}{22}$ (ii) $\frac{2}{9}$ (iii) $\frac{9}{44}$ (iv) $\frac{35}{44}$ (v) $\frac{2}{11}$

33. A die is thrown 380 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** | 30 | 45 | 60 | 75 | 80 | 90 |

If the die is thrown again randomly, find the probability of getting 3 as outcome.

(i) $\frac{4}{19}$ (ii) $\frac{16}{19}$ (iii) $\frac{2}{19}$ (iv) $\frac{3}{19}$ (v) $\frac{1}{5}$

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

9 27 23 16 22 3 3 20 26 14 29 14 28

What is the empirical probability that an engineer lives less than 14 km from her place of work?

(i) $\frac{10}{13}$ (ii) $\frac{4}{13}$ (iii) $\frac{2}{7}$ (iv) $\frac{2}{13}$ (v) $\frac{3}{13}$

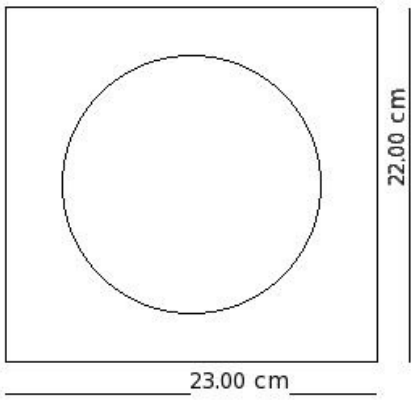
35. The distances (in km) of engineers from their residence to their place of work were found as follows

29 20 23 8 6 22 10 19

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

(i) $\frac{7}{8}$ (ii) $\frac{8}{9}$ (iii) $\frac{3}{4}$ (iv) 1 (v) $\frac{1}{8}$

36. Suppose a die is thrown on a rectangular region as shown below. What is the probability that it will land inside the circle of diameter 16.00 cm?




(i) $\frac{9}{23}$ (ii) $\frac{65}{161}$ (iii) $\frac{65}{162}$ (iv) $\frac{64}{161}$ (v) $\frac{97}{161}$

## Assignment Key

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|---|---|---|---|---|---|
| 1) (i) | 2) (i) | 3) (v) | 4) (iii) | 5) (iii) | 6) (ii) |
| 7) (i) | 8) (ii) | 9) (i) | 10) (iv) | 11) (ii) | 12) (ii) |
| 13) (iv) | 14) (ii) | 15) (iii) | 16) (v) | 17) (i) | 18) (iv) |
| 19) (i) | 20) (v) | 21) (iii) | 22) (v) | 23) (iii) | 24) (i) |
| 25) (v) | 26) (v) | 27) (iv) | 28) (iii) | 29) (ii) | 30) (iv) |
| 31) (iv) | 32) (iii) | 33) (iv) | 34) (v) | 35) (i) | 36) (iv) |