EduSahara™ Learning Center Assignment

Grade : Class IX, SSC
Chapter : Probability
Name : Probability

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1. A coin is tossed 50 times and tail appears 25 times. If the coin is tossed again, what is the probability of getting a head?

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

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2. A coin is tossed 50 times and head appears 35 times. If the coin is tossed again, what is the probability of getting a tail?

(i) $\frac{3}{10}$ (ii) $\frac{4}{11}$ (iii) $\frac{2}{5}$ (iv) $\frac{7}{10}$ (v) $\frac{1}{5}$

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3. Two coins are tossed simultaneously 60 times and it was observed that both heads appeared 35 times. If two coins are tossed simultaneously at random, what is the probability of getting both heads?

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

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4. Two coins are tossed simultaneously 70 times and it was observed that both tails appeared 55 times. If two coins are tossed simultaneously at random, what is the probability of getting both tails?

(i) $\frac{3}{14}$ (ii) $\frac{4}{5}$ (iii) $\frac{6}{7}$ (iv) $\frac{5}{7}$ (v) $\frac{11}{14}$

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5. A die is thrown 100 times. Prime numbers appeared on the upper face 70 times. If a die is thrown at random, what is the probability of getting a prime number?

(i) $\frac{4}{5}$ (ii) $\frac{8}{11}$ (iii) $\frac{7}{10}$ (iv) $\frac{3}{5}$ (v) $\frac{3}{10}$

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6. A survey of 80 men showed that only 20 of them know Sanskrit. Out of these men, if one is selected at random, what is the probability that the selected man knows Sanskrit?

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

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7. On a particular day, at a crossing in a city, the various types of 115 vehicles going past during a time-interval were observed as under:

Type of Vehicle	Three-wheeler	Two-wheeler	Four-wheeler
Frequency	30	35	50

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

(i) $\frac{6}{23}$ (ii) $\frac{1}{3}$ (iii) $\frac{16}{23}$ (iv) $\frac{7}{23}$ (v) $\frac{8}{23}$

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8. The following table shows the blood-groups of 288 students of a class.

Blood group	B	AB	O	A
Number of students	45	72	81	90

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

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

3 4 0 4 2

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

20. What is the probability of a sure event?

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

21. What is the probability of an impossible event?

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

22.

There are 68 students in a class room of whom 32 are boys and 36 are girls. From these students, one is choosen at random. What is the probability that the choosen student is a boy ?

(i) $\frac{1}{2}$ (ii) $\frac{7}{17}$ (iii) $\frac{8}{17}$ (iv) $\frac{9}{17}$

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23. There are 56 students in a class room of whom 26 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) $\frac{4}{7}$ (ii) $\frac{13}{28}$ (iii) $\frac{1}{2}$ (iv) $\frac{15}{28}$ (v) $\frac{16}{29}$

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24. Which of the following are true?

a) The probability of an event that is very likely to happen is 1
b) If the probability of failing the exam is 0.83, the probability of passing the exam is 0.17
c) Probability of getting 101 marks out of 100 is 1.01
d) The probability of an event that cannot happen is unknown
e) If the probability is too less, it will become negative

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

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

a) A man throws a die. The number on the top is either 6 or not 6
b) A baby is born, it is a boy or girl
c) A ball is hit. It reaches the boundary or not
d) A man starts his vehicle. It starts or it does not starts

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

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

a) $\frac{8}{9}$
b) -2.3
c) $\frac{7}{2}$
d) 4
e) 0.67

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

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27. If P(E) = 0.6 , find P($\overline{E}$)

(i) 7.4 (ii) 0.4 (iii) 2.4 (iv) 1.4 (v) 8.4

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28. Which of the following are true?

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

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

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29. Which of the following are true?

a) P(E) + P(not E) = 1

b) P(E) - P(not E) = 0

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

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

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

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

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30. A die is thrown 560 times. The number 3 appears on the upper face 70 times. Now the die is thrown at random. What is the probability of getting a 3 ?

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

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31. 207 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	72	90

Compute the probability of the family, chosen at random, having no girls

(i) $\frac{4}{23}$ (ii) $\frac{18}{23}$ (iii) $\frac{5}{23}$ (iv) $\frac{1}{4}$ (v) $\frac{6}{23}$

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32. Three coins are tossed simultaneously 160 times with the following frequencies of different outcomes :

Outcome	3 heads	2 heads	1 heads	No heads
Frequency	25	30	40	65

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

(i) $\frac{1}{8}$ (ii) $\frac{5}{32}$ (iii) $\frac{2}{11}$ (iv) $\frac{27}{32}$ (v) $\frac{3}{16}$

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33. A die is thrown 270 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	25	30	35	45	50	85

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

(i) $\frac{4}{27}$ (ii) $\frac{7}{54}$ (iii) $\frac{8}{55}$ (iv) $\frac{47}{54}$ (v) $\frac{1}{9}$

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

20 , 2 , 5 , 21 , 13 , 2 , 18 , 10

What is the empirical probability that an engineer lives less than 5 km from her place of work?

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

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

30 , 21 , 25 , 22 , 23 , 4 , 6 , 12 , 18 , 9 , 6 , 25 , 15 , 14 , 19

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

(i) $\frac{8}{15}$ (ii) $\frac{9}{16}$ (iii) $\frac{7}{15}$ (iv) $\frac{3}{5}$

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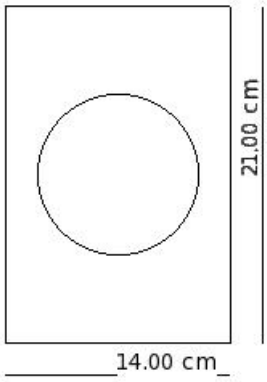
36. Suppose a die is thrown on a rectangular region as shown below. What is the probability that it will land inside the circle of diameter 10.00 cm?



(i) $\frac{275}{1029}$ (ii) $\frac{754}{1029}$ (iii) $\frac{274}{1029}$ (iv) $\frac{138}{515}$ (v) $\frac{92}{343}$

Assignment Key

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