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## MATHS

# NCERT - NCERT MATHEMATICS(TELUGU) 

## PROBABILITY

## Example

1. Two coin (a one rupee coin and a two rupee coin) are tossed once. Find a sample space.

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2. Find a sample space associated with the experiment of rolling a
pair of dice (one is blue and other is red) once is Also, find the
number od element of this sample space.

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3. In each of the following experiments specify appropriate sample space
(i) A boy has 1 rupee coin, a 2 rupee coin and a 5 rupee coin in his pocket. He takes out two coins out of his pocket, one after the other.
(ii) A person is noting down the number of accidents along a busy
highway during a year.

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4. A coin is tossed. If it shows head, we draw a ball from a bag consisting of 3 blue and 4 white balls, if it shows tail we throw a die. Describe the sample space of this experiment.

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5. Consider the experiment in which a coin is tossed repeatedly until a head comes up. Describe the sample space.

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6. Consider the experiment of rolling die. Let $A$ be the event 'getting a prime number'. B be the event 'getting an odd number'. Write the sets representing the events (i) $A$ or $B$ (ii) $A$ and $B$ (iii) $A$ but not B (iv) 'not A'.

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7. Express each of the following decimals in the $\frac{p}{q}$ form

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8. A coin is toosed three times consider the following events. A:'No head appears', B: 'Exactly one head appears' and C: 'Atleast two heads appear'.

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9. Let a sample space be $S=\left\{\omega_{1}, \omega_{2}, \ldots ., \omega_{6}\right\}$. Which of the following assingments of probabilities to each outcomes are valid?

Outcomes $\omega_{1} \quad \omega_{2} \quad \omega_{3} \quad \omega_{4} \quad \omega_{5} \quad \omega_{6}$
(a) $\frac{1}{6} \frac{1}{6} \frac{1}{6} \frac{1}{6} \frac{1}{6} \frac{1}{6}$
(b) 100000
(c) $\frac{1}{8} \frac{2}{3} \frac{1}{3} \frac{1}{3}-\frac{1}{4}-\frac{1}{3}$
(d) $\frac{1}{12} \frac{1}{12} \frac{1}{6} \frac{1}{6} \frac{1}{6} \frac{3}{2}$
(e) 0.60 .60 .60 .60 .60 .6 .

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10. One card is drawn from a well shuffled deck of 52 cards. If each outcomes is equally likely, calculate the probability that the card will be
(i) a diamond
(ii) not a ace
(iii) a black card (i.e., a club or, a spade) (iv) not a diamond (v) not a black card.

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11. A bag contains 9 discs of which 4 are red, 3 are blue and 2 are yellow. The disce are similar in shape and size. A disc is drawn at
rendom from the bag. Calculate the probability that it will be (i) red, (ii) yellow, (iii) blue, (iv) not blue, (v) either red or blue.

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12. Two students Anil and Ashima appeared is an examination. The probability that Anil will qualify the examination is 0.05 and that Ashima will qualify the examination is 0.10 . The probability qualify the examination is 0.02 . Find the probability that
(a) Bothe Anil and Ashima will not qualify the examination.
(b) Atleast one of them will qualify the examination and (c) Only one of them will qualify the examination.

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13. A committee of two persons is selected from two men and two women. What is the probability that the committee will have (a)
no man? (b) one man? (c) two men?

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14. On her vacations Veena visits four cities(A, B, C and D) in random order. What is the probability that she visits
(i) A before $B$ ? (ii) A before $B$ and $B$ before $C$ ?
(iii) A fist and B last? (iv) A either first or second? (v) A just before B?

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15. Find the probability that when a hand of 7 cards is drawn from well sheffled deck of 52 cards, it contians (i) all kings (ii) 3 Kings
(iii) atleast 3 Kings.
16. If $A, B, C$ are three events associated with a random experiment, prove that
$P(A \cup B \cup C)=P(A)+P(B)+P(C)-P(A \cap B)-P(A \cap C)$
$P(B \cap C)+P(A \cap B \cap C)$

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17. In a relay race there are five teams $\mathrm{A}, \mathrm{B}, \mathrm{C}, \mathrm{D}$ and E .
(a) What is the probability that A, B and C finish first, second and third, respectively.
(ii) What is the probability that $A, B$ and $C$ are first three to finish
(In any order) (Assume that all finishing orders are equally likely).

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1. Describe the sample space of a indicated experiment : A coin is tossed three times.

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2. Describe the sample space of a indicated experiment:A die is thrown two times.

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3. Describe the sample space of a indicated experiment:A coin is tossed four times.

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4. Describe the sample space of a indicated experiment:A coin is tossed and a die is thrown.

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5. A coin is tossed and then a die is rolled only in case head is shown on the coin.

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6. 2 boys and 2 girls are in Room X, and 1 boy and 3 girls are in

Room Y . Specify the sample space for the experiment in which a room is selected and then a person.
7. One die of red colour, one of die white colour and one of blue colour are placed in a bag. One die is selected at random and rolled, its colour and the number on its uppermost face is noted. Describe the sample space.

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8. An experiment consists of recording boy-girl composition of families with 2 childern.
(i) What is the sample space if we are interested in knowing whether it is a boy or girl in the order of their births?
(ii) What is the sample space if we are interested in the number of girls in the family?

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9. A box contains 1 red and 3 identical white balls. Two balls are drawn at random in succession without replacement. Write the sample space for this experiment.

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10. An experiment consists of tossing a coin and then throwing it
second time if a head occurs on the first toss. If a tail occurs on the first toss then a die is rolled once. Find the sample space.

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11. Suppose 3 bulbs are selected at random from a lot. Each bulb is tested and classified as defective( N ) or non defective( N ). Write the sample space for the experiment?
12. A coin is tossed. If the out come is a head, a die is thrown. If the die shows up an even number, the die is thrown again. What is the sample space for the experiment?

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13. The number 1, 2, 3 and 4 are written sepratly on four slips of paper. The slips are put in a box and mixed thoroughly. A person draws two slips from the box, one after the other, without replacement. Descrebe the sample space for the experiment?

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14. Express each of the following decimals in the $\frac{p}{q}$ form

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15. A coin is tossed. If it shows tail, we draw a ball from a box contains of 2 red and 3 black balls. If it shows heads, we throw a die. Find the sample space of this experiment.

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16. Express each of the following decimals in the $\frac{p}{q}$ form 87.2

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## Exercise 162

1. Express each of the following decimals in the $\frac{p}{q}$ form 44.12

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2. Express each of the following decimals in the $\frac{p}{q}$ form 0.62

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3. Express each of the following decimals in the $\frac{p}{q}$ form 9.65

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4. Express each of the following decimals in the following $\frac{p}{q}$ form 24.58

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5. Express each of the following decimals in the following $\frac{p}{q}$ form 60.2

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6. Express each of the following decimals in the following $\frac{p}{q}$ form 90.32

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7. Express each of the following decimals in the following $\frac{p}{q}$ form 1.52

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## Exercise 163

1. Which of the following can not be valid assignment of probabilities for outcomes of sample Space $S=\left\{\omega_{1}, \omega_{2}, \omega_{3}, \omega_{4}, \omega_{5}, \omega_{6}, \omega_{7}\right\}$
(a) 0.10 .010 .050 .030 .010 .20 .6
(b) $\frac{1}{7} \frac{1}{7} \frac{1}{7} \frac{1}{7} \frac{1}{7} \frac{1}{7} \frac{1}{7}$
(c) 0.10 .20 .30 .40 .50 .60 .7
(d) $-0.10 .20 .30 .4-0.20 .10 .3$
(e) $\frac{1}{14} \frac{2}{14} \frac{3}{14} \frac{4}{14} \frac{5}{14} \frac{6}{14} \frac{15}{14}$
2. A coin is tossed twice, what is the probability that atleast one tail occurs?

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3. A die I thrown, find the probability of following events:
(i) A prime number will appear,
(ii) A number greater than or equal to 3 will appear,
(iii) A number less than or equal to one will appear,
(iv) A number more than 6 will appear,
(v) A number less than 6 will appear.
4. Express each of the following decimals in the following $\frac{p}{q}$ form 5.682

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5. Express each of the following decimals in the following $\frac{p}{q}$ form 0.642

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6. There are four men and six women on the city council. If one council member is selected for a committee at random, how likely is it that it is a women?
7. Express each of the following decimals in the $\frac{p}{q}$ form

### 0.756

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8. Express each of the following decimals in the following $\frac{p}{q}$ form 9.455

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9. If $\frac{2}{11}$ Is the probability of an event, what is the probability of the event 'not A '.

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10. A lette is chosen at random from the 'ASSASSINATION'. Find the probability that letter is (i) a vowel (ii) a consonant.

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11. Express each of the following decimals in the $\frac{p}{q}$ form 44.45

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12. Check whether the following probabilities $P(A)$ and $P(B)$ consistently defined
(i) $P(A)=0.5, P(B)=0.7, P(A \cap B)=0.6$
(ii) $P(A)=0.5, P(B)=0.4, P(A \cup B)=0.8$
13. Fill up the blanks in following table:
$P(A) \quad P(B) \quad P(A \cap B \quad P(A \cup B)$
(i) $\frac{1}{3} \quad \frac{1}{5} \quad \frac{1}{15} \quad \ldots$
(ii) $0.35 \quad$.. $\quad 0.25 \quad 0.6$
(iii) $0.5 \quad 0.35 \quad$... 0.7 .

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14. Given $P(A)=\frac{3}{5}$ and $P(B)=\frac{1}{5}$. Find $P(A$ or $B)$, if A and B are mutually excluive events.

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15. If E and F are events such that $P(E)=\frac{1}{4}, P(F)=\frac{1}{2}$ and $\mathrm{P}(\mathrm{E}$ and $F$ ) $=\frac{1}{8}$, find (i) $P(E$ or $F)$, (ii) $P($ not $E$ and not $F)$.
16. Events E and F are uch that $P(\neg E$ or $\neg F)=0.25^{`}$, State whether E and F are mutually exclusive.

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17. $A$ and $B$ are events such that $P(A)=0.42, P(B)=0.48$ and $P(A$ and $B$ ) $=0.16$, Determine (i) $P($ not $A)$, (ii) $P($ not $B)$ and (iii) $P(A$ or
B).

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18. Express each of the following decimals in the $\frac{p}{q}$ form 44.02
19. Express each of the following decimals in the $\frac{p}{q}$ form 79.2

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20. Express each of the following decimals in the $\frac{p}{q}$ form 67.22

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21. Express each of the following decimals in the $\frac{p}{q}$ form 67.82

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1. A box contains 10 red marbles, 20 blue marbles and 30 green marbles. 5 marbles are drawn from the box, what is the probability that
(i) all will be blue? (ii) atleast one will be green?

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## Miscellaneous Exerciseon Chapter 17

1.4 cards are drawn from a well - shuffled deck of 52 cards. What is the probability of obtaining 3 diamonds and one spade?

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1. A die has two faces each with number ' 1 ', three faces each number '2' and one face with number '3'. If die is rolled once, determine
(i) $P(2)$, (ii) $P(1$ or 3$)$, (iii) $P($ not 3$)$.

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## Miscellaneous Exerciseon Chapter 19

1. In a certains lottery 10,000 tickets are sold and ten equal prizes are awarded. What Is the probability of not getting a prize if you buy (a) one ticket (b) two tikets (c) 10 tickets.

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1. Express each of the following decimals in the $\frac{p}{q}$ form 80.2

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## Miscellaneous Exerciseon Chapter 21

1. Express each of the following decimals in the $\frac{p}{q}$ form 0.06

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## Miscellaneous Exerciseon Chapter 22

1. Express each of the following decimals in the $\frac{p}{q}$ form

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Miscellaneous Exerciseon Chapter 23

1. Express each of the following decimals in the $\frac{p}{q}$ form 10.12

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Miscellaneous Exerciseon Chapter 24

1. Express each of the following decimals in the $\frac{p}{q}$ form 9.912

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## Miscellaneous Exerciseon Chapter 25

1. Express each of the following decimals in the $\frac{p}{q}$ form
0.18
