MATHS

NCERT - NCERT Maths(Telugu)

PROBABILITY

Example Solution

1. If two identical coins are tossed simultaneously. Find (a) the possible outcomes, (b) the number of total outcomes,

(c) the probability of getting two heads, (d) probability of getting atleast one head, (e) probability of getting no heads and (f) probability of getting only one head.

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2. (a) Write the probability of getting each number on the top face when a die was rolled in the following table. (b) Find the sum of the probabilities of all outcomes.

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3. A spinner was spun 1000 times and the frequency of outcomes was recorded as in given table:

Outcome	Red	Orange	Purple	Yellow	Green
Frequency	185	195	210	206	204

Find (a) List the possible outcomes that you can see in the spinner (b) Compute the probability of each outcome. (c) Find the ratio of each outcome to the total number of times that the spinner spun (use the table)

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4. The following table gives the ages of audience in a theatre. Each person was given a serial number and a person was selected randomly for the bumper prize by choosing a serial number. Now find the probability of each event.

Age	Male	Female
Under 2	3	5
3 - 10 years	24	35
11 - 16 years	42	53
17 - 40 years	121	97
41- 60 years	51	43
Over 60	18	13

Total number of audience : 505

Find the probability of each event given below.

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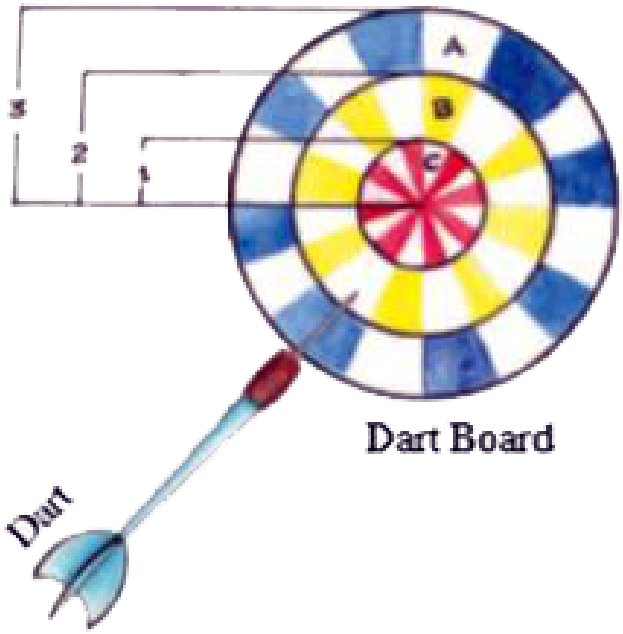
5. Assume that a dart will hit the dart board and each point on the dart board is equally likely to be hit in all the three concentric circles where radii of concetric circles are 3 cm, 2 cm and 1 cm as shown in the figure below.

Find the probability of a dart hitting the board

in the region A. (The outer ring)



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Exercise 14 1

1. A die has six faces numbered from 1 to 6. It is rolled and the number on the top face is noted. When this is treated as a random trial.

a) What are the possible outcomes ?

b)Are they equally likely? Why?

c) Find the probability of a composite number turning up on the top face.

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2. A coin is tossed 100 times and the following outcomes are recorded

Head:45 times Tails:55 times from the experiment

a) Compute the probability of each outcomes.

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3. A spinner has four colours as shown in the figure. When we spin it once, find

a) At which colour, is the pointer more likely to stop?

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d) What is the chance the pointer will stop on white?

e) Is there any colour at which the pointer

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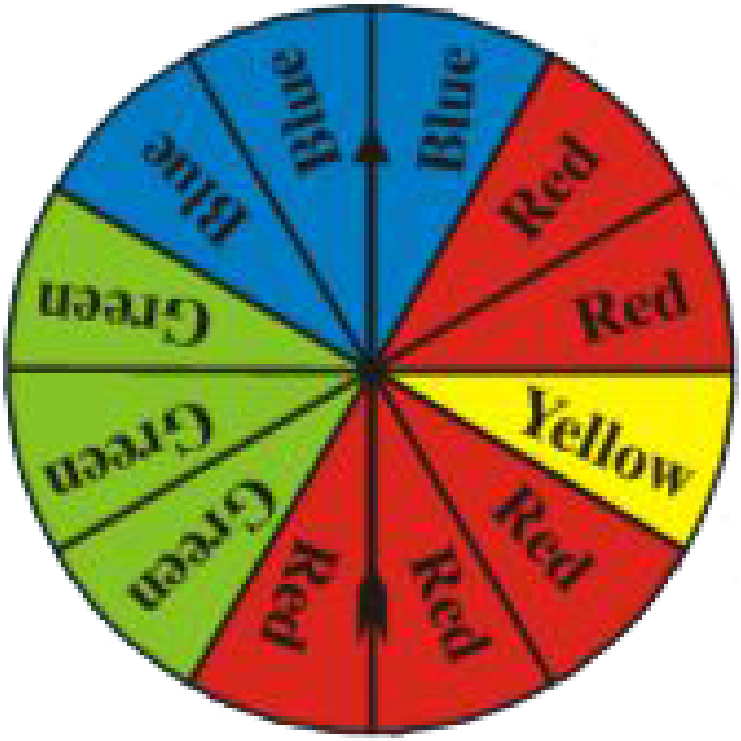

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4. A bag contains five green marbles, three blue marbles, two red marbles, and two yellow marbles. One marble is drawn out randomly.

a) Are the four different colour outcomes equally likely? Explain.

b) Find the probability of drawing each colour marble

i.e. , P(green), P(blue), P(red) and P(yellow)

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6. An insurance company selected 2000 drivers at random (i.e., without any preference of one driver over another) in a particular city to find a relationship between age and accidents. The data obtained is given in the following table:

Age of Drivers (in years)	Accidents in one year				More than 3 accidents
	0	1	2	3	
18-29	440	160	110	61	35
30- 50	505	125	60	22	18
Over 50	360	45	35	15	9

Find the probabilities of the following events for a driver chosen at random from the city:

(i) The driver being in the age group 18-29 years and having exactly 3 accidents in one year.

(ii) The driver being in the age group of 30-50 years and having one or more accidents in a year.

(iii) Having no accidents in the year.

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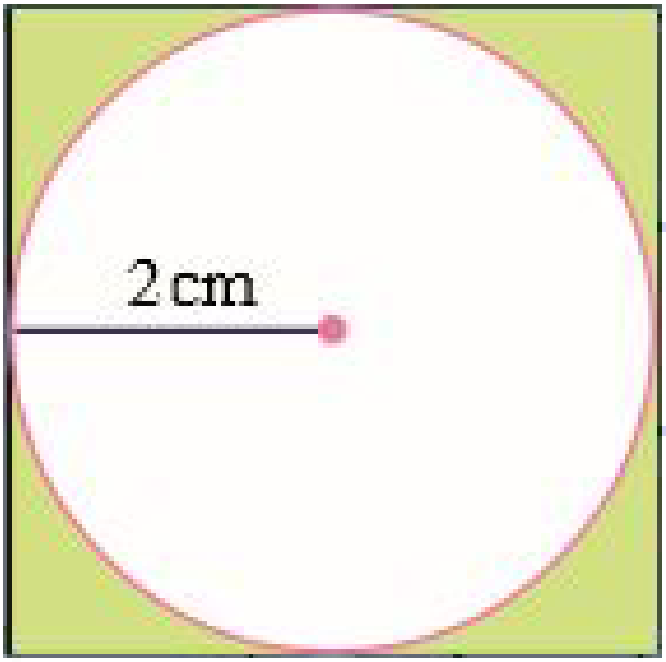
7. What is the probability that a randomly thrown dart hits the square board in shaded region

(Take $\pi = \frac{22}{7}$ and express in percentage)



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Try These

1. If you try to start a scooter , What are the possible outcomes?


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2. When you roll a die, What are the six possible outcomes?


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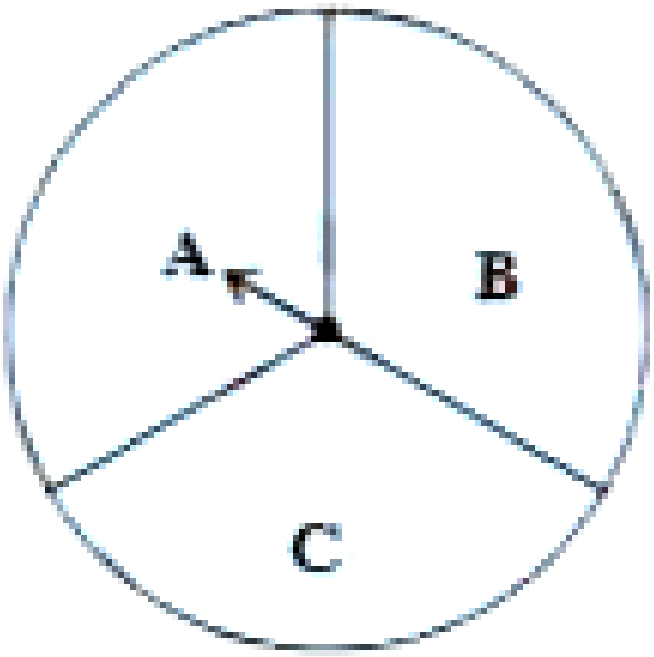
3. When you spin the wheel shown, What are the possible outcomes?

(Out comes here means the possible sector

where the pointer stops)



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4. Without calculating, write the percentage of probability of the dart hitting the board in circular region C (i.e. ring C).

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5. Find the probability of each event when a die is rolled once

Event	Favourable outcome(s)	Number of favourable outcome(s)	Total possible outcomes	Number of total possible outcomes	Probability = Number of favourable outcomes / Number of total possible outcomes
Getting a number 5 on the top face	5	1	1, 2, 3, 4, 5 and 6	6	1/6
Getting a number greater than 3 on the top face					
Getting a prime number on the top face					
Getting a number less than 5 on the top face					
Getting a number that is a factor of 6 on the top face					
Getting a number greater than 7 on the top face					
Getting a number that is a Multiple of 3 on the top face					
Getting a number 6 or less than 6 on the top face					

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6. If you try to start a scooter , What are the possible outcomes?

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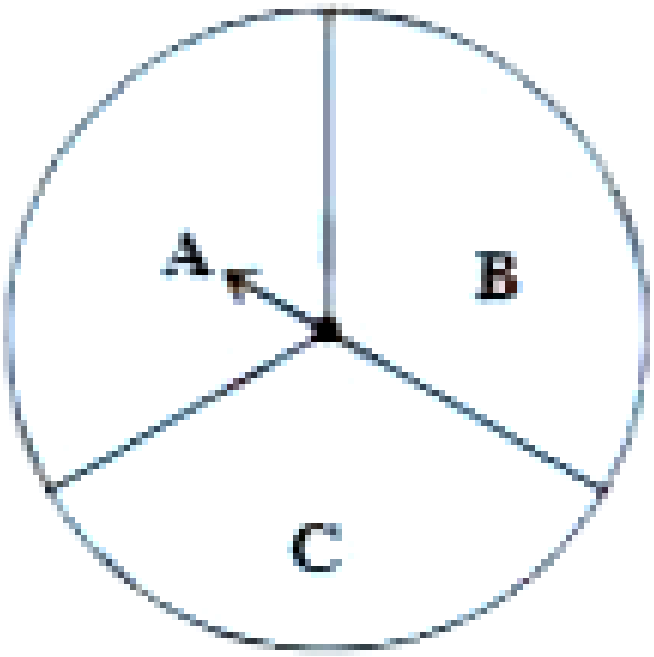

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9. You have a jar with five identical balls of different colour (White, Red, Blue, Grey and Yellow) and you have to pickup (draw) a ball without looking at it. List the possible outcomes you get.

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10. Find the probability of each event when a die is rolled once

Event	Favourable outcome(s)	Number of favourable outcome(s)	Total possible outcomes	Number of total possible outcomes	Probability = Number of favourable outcomes / Number of total possible outcomes
Getting a number 5 on the top face	5	1	1, 2, 3, 4, 5 and 6	6	1/6
Getting a number greater than 3 on the top face					
Getting a prime number on the top face					
Getting a number less than 5 on the top face					
Getting a number that is a factor of 6 on the top face					
Getting a number greater than 7 on the top face					
Getting a number that is a Multiple of 3 on the top face					
Getting a number 6 or less than 6 on the top face					

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11. Without calculating, write the percentage of probability of the dart hitting the board in

circular region C (i.e. ring C).

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12. If you try to start a scooter , What are the possible outcomes?

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13. When you roll a die, What are the six possible outcomes?

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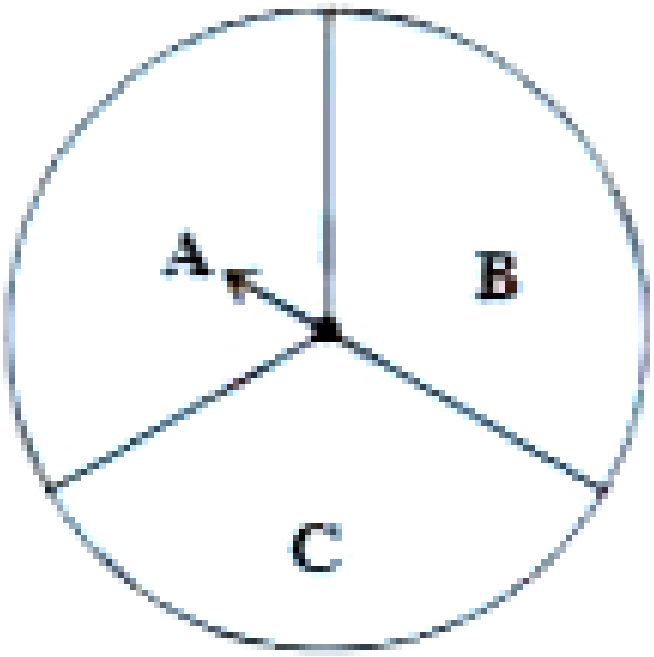
14. When you spin the wheel shown, What are the possible outcomes?

(Out comes here means the possible sector

where the pointer stops)



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15. You have a jar with five identical balls of different colour (White, Red, Blue, Grey and Yellow) and you have to pickup (draw) a ball without looking at it. List the possible outcomes you get.

 Watch Video Solution

16. Find the probability of each event when a die is roll once:

Event	Favourable outcome(s)	Number of favourable outcome(s)	Total possible outcomes	Number of total possible outcomes	Probability = Number of favourable outcomes / Number of total possible outcomes
Getting a number 5 on the top face	5	1	1, 2, 3, 4, 5 and 6	6	1/6
Getting a number more than 3 on the top face					
Getting a prime numberon the top face					
A number less than 5 on the top face					
A number that is factor of 6 on the top face					
A number more than 7 on the top face					
A number Multiple of 3 on the top face					
Getting a number 6 or less than 6 on the top face					

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17. Find the probability of the dart hitting the board in the circular region B (i.e. ring B)

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18. Without calculating, write the percentage of probability of the dart hitting the board in circular region C (i.e. ring C).

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Think Discuss And Write

1. In rolling a die .

Does the first player have a greater chance of

getting a six on the top face?

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2. In rolling a die .

Would the player who played after him have a

lesser chance of getting a six on the top face?

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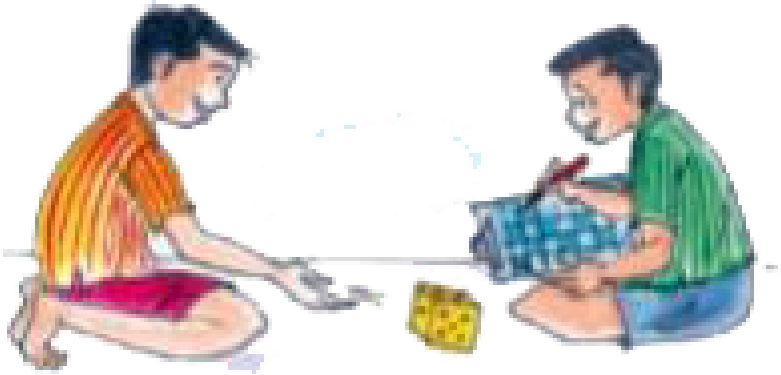
3. In rolling a die .

Suppose the second player got a six on the top face. Does it mean that the third player would not have a chance of getting a six on

the top face?



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4. In rolling a die .

Does the first player have a greater chance of

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Watch Video Solution

5. In rolling a die.

• Does the first player have a greater chance of getting a six on the top face?

• Would the player who played after him have a lesser chance of getting a six on the top

face?

• Suppose the second player got a six on the top face. Does it mean that the third player would not have a chance of getting a six on the top face ?

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Do This

1. Toss a coin for number of times as shown in the table. And record your findings in the table.

No. of Tosses	Number of heads	No. of tails
10		
20		
30		
40		
50		

What happens if you keep on increasing the number of tosses.

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2. If three coins are tossed simultaneously then write their outcomes.

a) All possible outcomes

b) Number of possible outcomes

c) Find the probability of getting at least one head

(getting one or more than one head)

d) Find the Probability of getting at most two heads

(getting Two or less than two heads)

e) Find the Probability of getting no tails

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3. 2n+3=3k if n=2 then find k value?

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4. Classify the following statements into the categories less likely, equally likely, more likely.

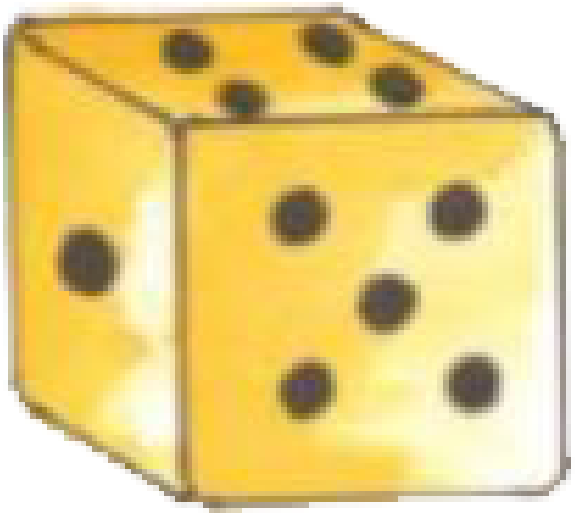
a) Rolling a die* and getting a number 5 on the top face.

b) Cold waves in your village in the month of November.

c) India winning the next soccer(foot ball)world cup

d) Getting a tail or head when a coin is tossed.

e) Winning the jackpot for your lottery ticket



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5. Observe the table

Name of the gland	Location	Hormones secreted	Respons of body to hormone
Thyroid	Neck	Thyroxin	General growth rate and metabolic activity.
Ovary	Lower abdomen	Oestrogen	Growth of the uterus and skeleton of the pelvis. Control of the 28 days menstrual period.

Write the remaining endocrine glands and their details in the tabular form :

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6. Classify the following statements into the categories less likely, equally likely, more likely. Rolling a die* and getting a number 5 on the top face.

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7. Classify the following statements into the categories less likely, equally likely, more likely.

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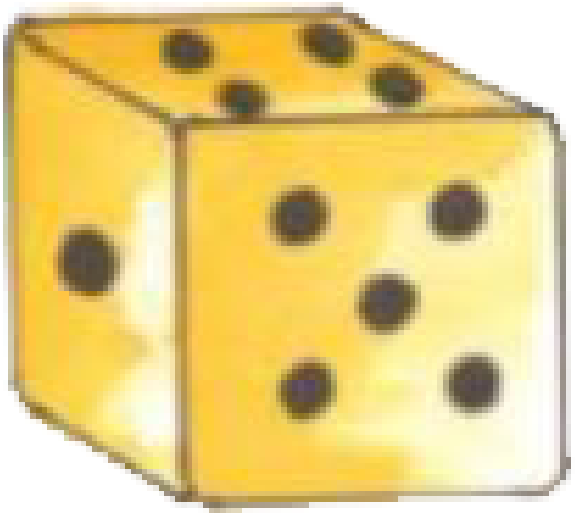

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8. Classify the following statements into the categories less likely, equally likely, more likely.

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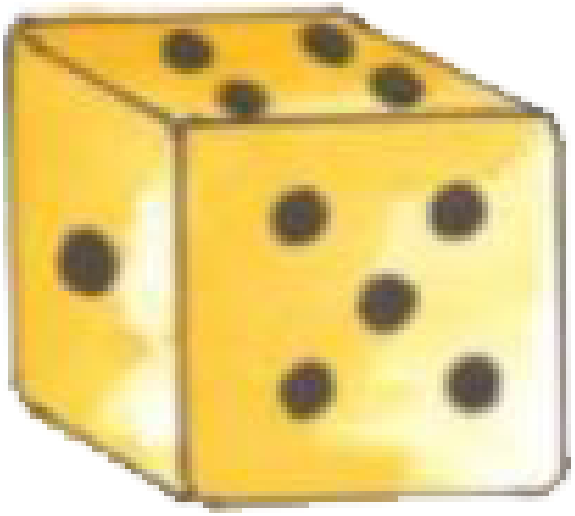

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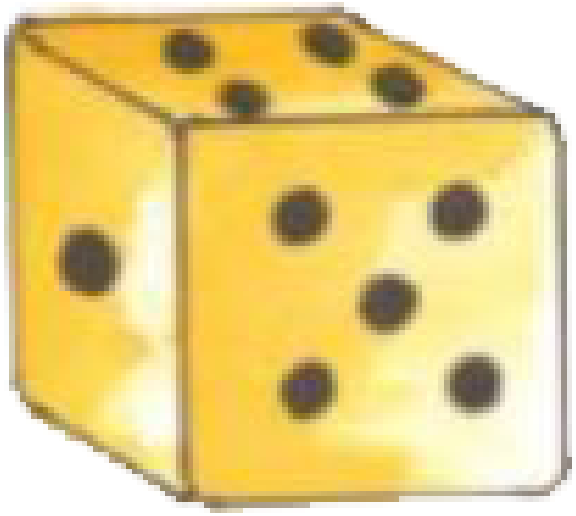

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11. Toss a coin for number of times as shown in the table. And record your findings in the

table.

No. of Tosses	Number of heads	No. of tails
10		
20		
30		
40		
50		

What happens if you keep on increasing the number of tosses

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12. If three coins are tossed simultaneously then write their outcomes.

All possible outcomes.

Watch Video Solution

13. If three coins are tossed simultaneously then write their outcomes.

Number of possible outcomes.

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14. If three coins are tossed simultaneously then write their outcomes.

Find the probability of getting at least one head (getting one or more than one head)

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15. If three coins are tossed simultaneously then write their outcomes.

Find the Probability of getting at most two heads (getting Two or less than two heads)

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16. If three coins are tossed simultaneously then write their outcomes.

Find the Probability of getting no tails.

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17. Observe the table

Name of the gland	Location	Hormones secreted	Respons of body to hormone
Thyroid	Neck	Thyroxin	General growth rate and metabolic activity.
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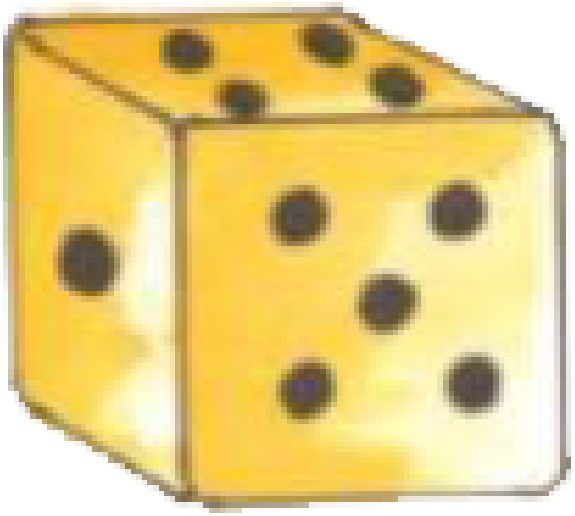

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19. Toss a coin for number of times as shown in the table. And record your findings in the

table.

No. of Tosses	Number of heads	No. of tails
10		
20		
30		
40		
50		

What happens if you keep on increasing the number of tosses

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20. If three coins are tossed simultaneously then write their outcomes.

All possible outcomes.

Watch Video Solution

21. Three coins are tossed simultaneously. What is the number of all possible outcomes?

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22. If three coins are tossed simultaneously then write their outcomes.

Find the probability of getting at least one head (getting one or more than one head)

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23. If three coins are tossed simultaneously then write their outcomes.

Find the Probability of getting at most two heads (getting Two or less than two heads)

 Watch Video Solution

24. If three coins are tossed simultaneously then write their outcomes.

Find the Probability of getting no tails.

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Examples

1. If two identical coins are tossed simultaneously. Find (a) the possible outcomes, (b) the number of total outcomes, (c) the probability of getting two heads, (d) probability of getting atleast one head, (e) probability of getting no heads and (f) probability of getting only one head.

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2. (a) Write the probability of getting each number on the top face when a die was rolled in the following table. (b) Find the sum of the probabilities of all outcomes.

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3. A spinner was spun 1000 times and the frequency of outcomes was recorded as in given table.

Outcome	Red	Orange	Purple	Yellow	Green
Frequency	185	195	210	206	204

Find (a) List the possible outcomes that you can see in the spinner (b) Compute the probability of each outcome. (c) Find the ratio of each outcome to the total number of times that the spinner spun (use the table)

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4. The following table gives the ages of audience in a theatre. Each person was given a serial number and a person was selected

randomly for the bumper prize by choosing a serial number. Now find the probability of each event.

Age	Male	Female
Under 2	3	5
3 - 10 years	24	35
11 - 16 years	42	53
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41- 60 years	51	43
Over 60	18	13

Total number of audience : 505

Find the probability of each event given below.

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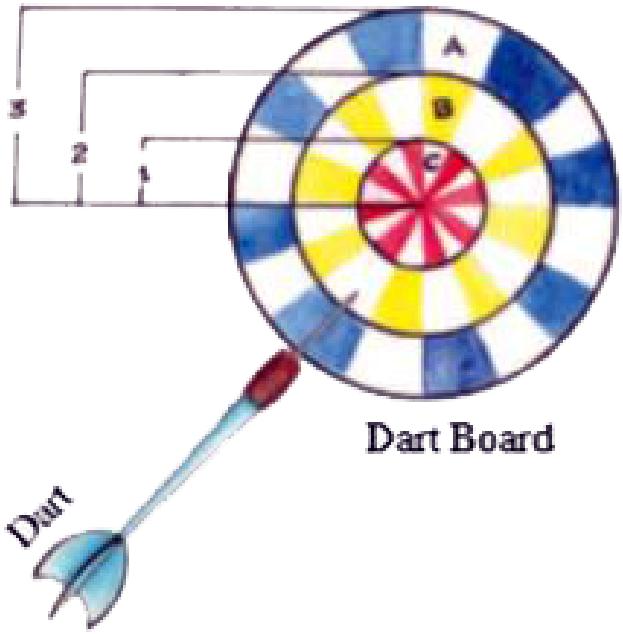
5. Assume that a dart will hit the dart board and each point on the dart board is equally likely to be hit in all the three concentric circles where radii of concetric circles are 3 cm, 2 cm and 1 cm as shown in the figure below.

Find the probability of a dart hitting the board

in the region A. (The outer ring)



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6. If two identical coins are tossed simultaneously. Find (a) the possible

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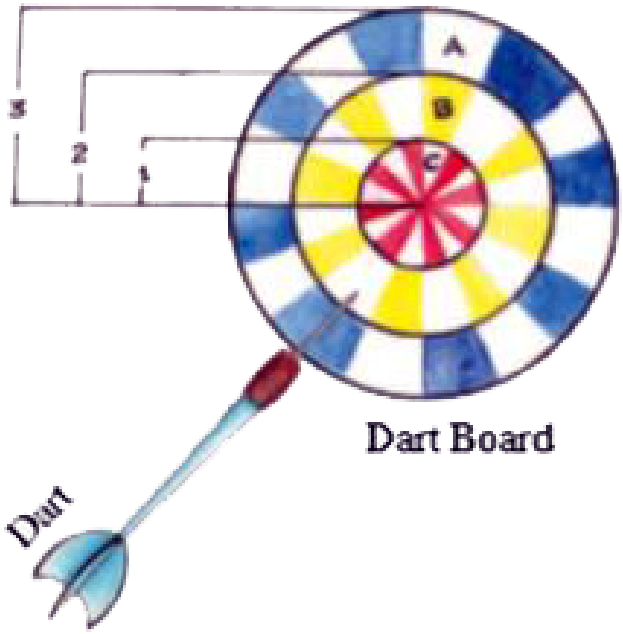

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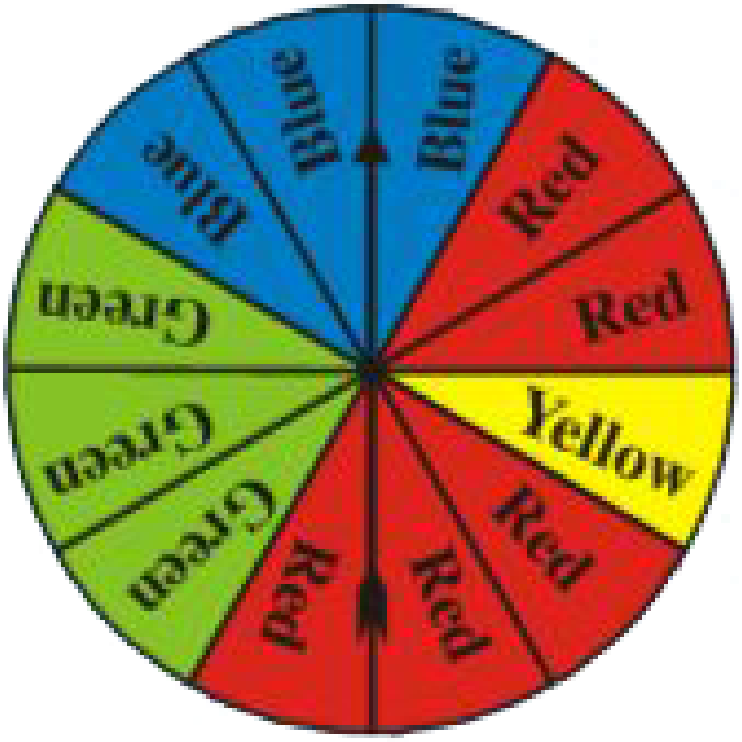

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7. A bag contains five green marbles, three blue marbles, two red marbles, and two yellow marbles. One marble is drawn out randomly.

a) Are the four different colour outcomes equally likely? Explain.

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a) A vowel b) a letter that comes after P

c) A vowel or a consonant d) Not a vowel

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11. Eleven bags of wheat flour, each marked 5 kg, actually contained the following weights of flour (in kg) : 4.97, 5.05, 5.08, 5.03, 5.00, 5.06, 5.08, 4.98, 5.04, 5.07, 5.00 Find the probability

that any of these bags chosen at random contains more than 5 kg of flour.

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12. An insurance company selected 2000 drivers at random (i.e., without any preference of one driver over another) in a particular city to find a relationship between age and accidents. The data obtained is given in the following table:

Age of Drivers (in years)	Accidents in one year				More than 3 accidents
	0	1	2	3	
18-29	440	160	110	61	35
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Over 50	360	45	35	15	9

Find the probabilities of the following events for a driver chosen at random from the city:

(i) The driver being in the age group 18-29 years and having exactly 3 accidents in one year.

(ii) The driver being in the age group of 30-50 years and having one or more accidents in a year.

(iii) Having no accidents in the year.

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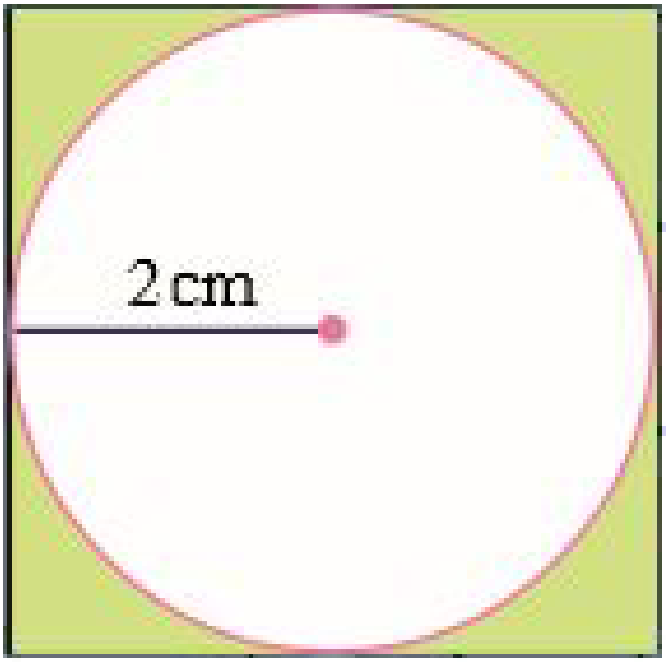

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16. A spinner has four colours as shown in the figure. When we spin it once, find

a) At which colour, is the pointer more likely to stop?

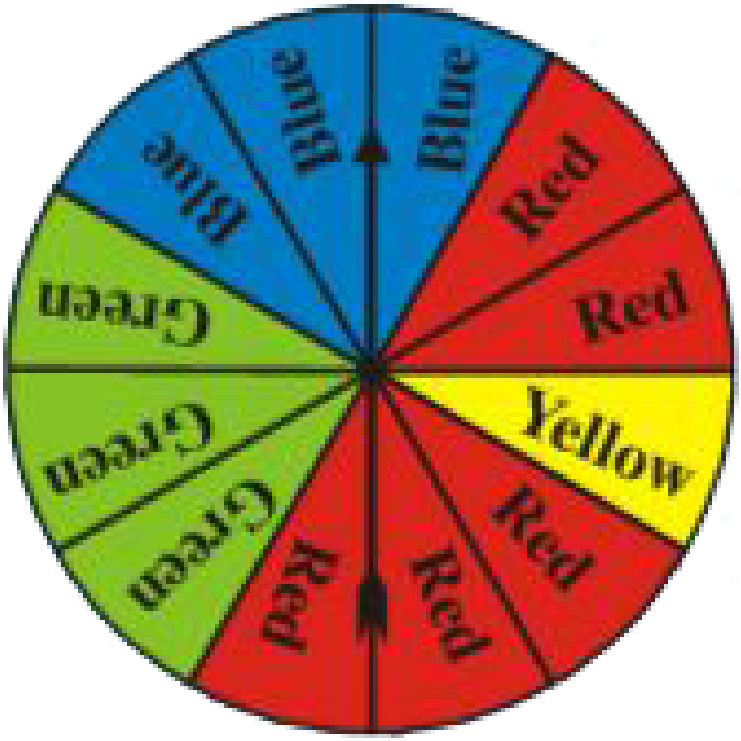
b) At which colour, is the pointer less likely to stop?

c) At which colours, is the pointer equally likely to stop?

d) What is the chance the pointer will stop on white?

e) Is there any colour at which the pointer

certainly stops?



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17. A bag contains five green marbles, three blue marbles, two red marbles, and two yellow marbles. One marble is drawn out randomly.

a) Are the four different colour outcomes equally likely? Explain.

b) Find the probability of drawing each colour marble

i.e. , P(green), P(blue), P(red) and P(yellow)

c) Find the sum of their probabilities.

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18. A letter is chosen from English alphabet. Find the probability of the letters being

a) A vowel b) a letter that comes after P

c) A vowel or a consonant d) Not a vowel

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19. Eleven bags of wheat flour, each marked 5 kg, actually contained the following weights of flour (in kg) : 4.97, 5.05, 5.08, 5.03, 5.00, 5.06, 5.08, 4.98, 5.04, 5.07, 5.00 Find the probability

that any of these bags chosen at random contains more than 5 kg of flour.

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20. An insurance company selected 2000 drivers at random (i.e., without any preference of one driver over another) in a particular city to find a relationship between age and accidents. The data obtained is given in the following table:

Age of Drivers (in years)	Accidents in one year				More than 3 accidents
	0	1	2	3	
18-29	440	160	110	61	35
30- 50	505	125	60	22	18
Over 50	360	45	35	15	9

Find the probabilities of the following events for a driver chosen at random from the city:

(i) The driver being in the age group 18-29 years and having exactly 3 accidents in one year.

(ii) The driver being in the age group of 30-50 years and having one or more accidents in a year.

(iii) Having no accidents in the year.

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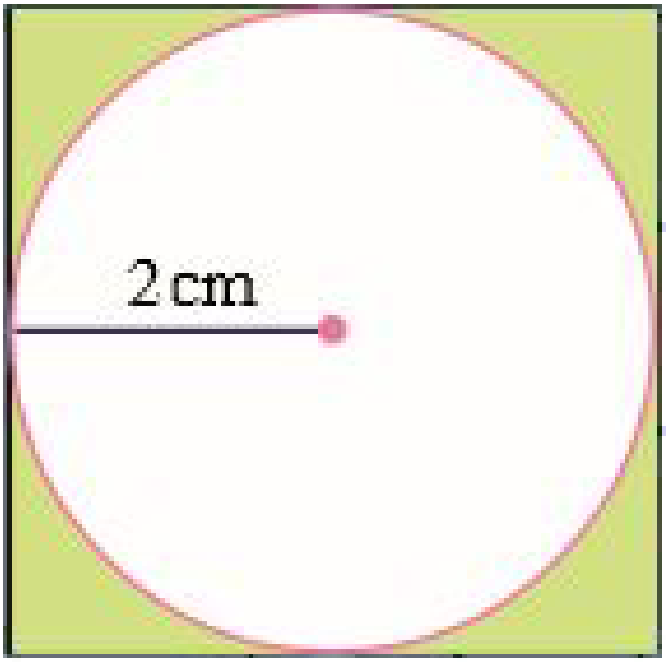
21. What is the probability that a randomly thrown dart hits the square board in shaded region

(Take $\pi = \frac{22}{7}$ and express in percentage)



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