



# MATHS

# **BOOKS - TARGET MATHS (HINGLISH)**

# PROBABILITY

#### Example

**1.** If a die is thrown, then find the probability of getting a composite number on the upper face.





1. How many possibilities are there in each of the following?

i. Vanita knows the following sites in Maharashtra. She is planning to visit one of them in her summer vacation.

Ajintha, Mahabaleshwar, Lonar Sarova, Tadoba wild life sanctuary, Amboli, Raiged, Matheran, Anandavan.

ii. Any day of week is to be selected randomly.

iii. Select one card from the pack of 52 cards.

iv. One number from 10 to 20 is writter on each card . Select one card randomly.



Practice Set 5 2

1. For each of the following experiments, write the sample space

S and the number of sample points n(S) :

(1) One coin and one die are thrown simultaneously.

(2) Two-digit numbers are formed using digits 2,3 and 5 without

repeating the digits.

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2. The arrow is rotated and it stops randomly on the disc. Find

out	on	which	colour	it	may	stop.
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**3.** In the month of March 2019, find the days on which the date is a multiple of 5.





**4.** Form a 'Road sefety committee' of two, from 2 boys  $(B_1, B_2)$ and 2 girls  $(G_1, G_2)$ . Complete the following activity to write the sample space .



Practice Set 5 3

1. Write the sample space S, and number of sample points n(S)

for each of the following experiments. Also, write events A,B,C in

the set form and write n(A), n(B),n(C):

(1) One die is rolled,

Event A : Even number on the upper face.

Event B : Odd number on the upper face.

Event C : Prime number on the upper face.

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Practice Set 5 4

1. If two coins are tossed, find the probability of the following

events.

i. Getting at least one head.

ii. Getting no head.



**2.** If two dice are rolled simultaneously, find the probability of the following events:

(1) The sum of the digits on the upper face is at least 10.

(2) The sum of the digits on the upper face is 33.

(3) The digit on the first die is greater than the digit on the second die.



**3.** There are 15 tickets in a box, each bearing one of the numbers from 1 to 15. One ticket is drawn at random from the

box. Find the probability of event that the ticket drawn

(1) shows an even number

(2) shows a number which is a multiple of 5.

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4. A two-digit number is formed with digits 2,3,5,7,9 without
repetition. What is the probability that the number formed is
(1) an odd number?
(2) a multiple of 5 ?
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**5.** A card is drawn at random from a pack of well-shuffled 52 playing cards. Find the probability that the card drawn is (1) an ace (2) a spade.



 $\mathsf{D}.\,0.7$ 

Answer: B

**2.** A die is rolled. What is the probability that the number appearing on upper face is less than 3?

A. 
$$\frac{1}{6}$$
  
B.  $\frac{1}{3}$   
C.  $\frac{1}{2}$ 

Answer: B

D. 0



3. What is the probability of the event that a number chosen

from 1 to 100 is a prime number?

A. 
$$\frac{1}{5}$$

B. 
$$\frac{6}{25}$$
  
C.  $\frac{1}{4}$   
D.  $\frac{13}{50}$ 

#### Answer: C



**4.** There are 40 cards in a bag. Each bears a number from 1 to 40. One card is drawn at random. What is the probability that the card bears a number which is a multiple of 5 ?

A. 
$$\frac{1}{5}$$
  
B.  $\frac{3}{5}$   
C.  $\frac{4}{5}$   
D.  $\frac{1}{3}$ 

#### Answer: A



**5.** If 
$$n(A) = 2$$
,  $P(A) = 15$ , then  $n(S) = ?$ 



Answer: A



**6.** Basketball players John, Vasim, Akash were practising the ball drop in the basket. The probabilities of success for John, Vasim and Akash are  $\frac{4}{5}$ ,0.83 and 58% respectively. Who had the greatest probability of success?

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7. In a hockey team there are 6 defenders, 4 offenders and 1 goalie . Out of these , one player is to be selected randomly as a captain . Find the probability of the selection that :

- i. The goalie will be selected.
- ii . A defender will be selected .

**8.** Joseph kept 26 cards in a cap, bearing one English letter on each card. Onr card is drawn at random. What is the probability that the card drawn is a vowel card ?



**9.** A balloon vendor has 2 red, 3 blue and 4 green balloons. He wants to choose one of them at random to give it to Pranali . What is the probability of the event that Pranali gets ,

i. a red balloon .

ii. a blue balloon.

iii. a green balloon.

**10.** A box contains 5 red, 8 blue and 3 green pens.

Rutuja wants to pick a pen at random.What is the probability

that the pen is blue?

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**11.** Six faces of a die are as shown below

If the die is rolled once, find the probability of

i. 'A' appears on upper face.

ii. 'D' appears on upper face.



**12.** A box contains 30 tickets, bearing only one number from1 to 30 on each . If one ticketis drawn at random, find the probability of an event that the ticket drawn bears

i. an odd number.

ii. a complete square number .



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**13.** Length and breadth of a rectangular garden are 77 m and 50 m. There is a circular lake in the garden having diameter 14 m. Due to wind, a towel from a ace on a nearby building fell into the garden. Find the probability of the event that it fell in the

lake.





14. In a game of chance, a spining arrow comes to rest at one of

the numbers

1,2,3,4,5,6,7,8,

All these are equally likely outcomes.



Find the probability that it will rest at



**15.** There are six cards in a box, each bearing a number from 0 to 5 . Find the probability of each of the following events, that a card drawn shows,

i. a natural number.

ii. a number less than 1.

iii. a whole number .

iv. a number greater than 5.



**16.** A bag contains 3 red, 3 white and 3 green balls. One ball is taken out of the bag at random. What is the probability that the ball drawn is



**17.** Each card bears one letter from the word 'mathematics'. The cards are placed on a table upide down. Find the probability that a card drawn bears the letter 'm'.

**18.** Out of 200 students from a school, 135 like Kabaddi and the remaining students do not like the game. If one student is selected at random from all the students, find the probability that the student selected doesn't like Kabaddi.



- 19. A two digit number is to be formed from the digits 0, 1, 2, 3,
- 4 . Repetition of the digits is allowed . Find the probability that

the number so formed is a :

i. prime number.

ii. Mltiple of 4.

iii. Multiple of 11.



**20.** The faces of a die bear number 0,1,2,3,4,5.

If the die is rolled twice, then find the probability that the

product of the digits on the upper face is zero.

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Multiple Choice Questions	

**1.** If two digit number are formed using the digits 0, 1, 2, 3, 4, 5 with repeating them, then n(S) =

A. 25

B.35

C. 30

D. 40

Answer: C
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<b>2.</b> There ar 4 boys and 3 girls. If group of two is to be formed ,

then the number of sample points are

A. 21

B. 12

C. 18

D. 15

Answer: A

**3.** Two unbiased coins are tossed. What is the probability of getting at most one head?

A. 
$$\frac{3}{4}$$
  
B.  $\frac{1}{4}$   
C.  $\frac{1}{2}$ 

D. 1

### Answer: A



**4.** A die is thrown. Find the probability of getting: a prime number.

A. 
$$\frac{1}{3}$$

B.  $\frac{1}{2}$ C.  $\frac{2}{3}$ D.  $\frac{5}{6}$ 

#### Answer: B



**5.** Two dice are thrown . The probability of getting sum of the numbers on their upper faces at most 4 is

A. 
$$\frac{1}{12}$$
  
B.  $\frac{5}{6}$   
C.  $\frac{1}{6}$   
D.  $\frac{11}{12}$ 

### Answer: C

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**6.** A bookshelf contains 40 books marked with numbers 1 to 40. If one book is drawn from this shelf at random, then the probability that the number on the book is a perfect square is

A. 
$$\frac{3}{20}$$
  
B.  $\frac{2}{15}$   
C.  $\frac{1}{10}$   
D.  $\frac{1}{3}$ 

Answer: A



7. If a card is drawn from a well shuffled pack of 52 cards, then

the probability that is a queen card is

A. 
$$\frac{3}{13}$$
  
B.  $\frac{1}{13}$   
C.  $\frac{4}{13}$   
D.  $\frac{2}{13}$ 

#### Answer: B



**8.** From a well shuffled pack of 52 cards, one card is drawn at random. What is the probability that it is a number card ?

A. 
$$\frac{10}{13}$$

B. 
$$\frac{11}{13}$$
  
C.  $\frac{9}{13}$   
D.  $\frac{12}{13}$ 

#### Answer: C



## Additional Problems For Practice Based On Practice Set 51

**1.** How many possibilites are there is each of the following ?

A date from 1 to 15 in the month of March is randomly selected .



2. How many possibilites are there is each of the following ?

A letter form word 'grography' is selected randomly.



3. How many possibilites are there is each of the following?

List of games played in school is given. Students has to select

any one of the games.

Kho-Kho, Cricket, Football, Kabaddi, Table tennis.

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Based On Practice Set 5 2

**1.** For the following experiment write sample space 'S' and number of sample points n(S).

Two digit number are formed from the digits 1, 3 and 7 where the digits are repeated .



2. In the month of January 2019, find the days on which the date

is a multiple of 6.

		Jai	nuary	2019		*
Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		



**3.** Form a 'committee' of two , from 3 men  $(M_1, M_2, M_3)$  and 2 women  $(W_1, W_2)$ . Complete the following activity to write the sample space.

(i) Committee of three men $=$ $\Box$ , $\Box$ , $\Box$							
(ii) Co	ommittee of tv	vo wor	men =				
(iii)	Committee	of	one	man	and	one	women
$M_1W$	$T_1 \Box \Box \Box \Box$						
•••	9	Sampe	2		space		=
{	—, — <sub>—</sub> —, —	,		,	,	-, —_	_,,
0	<b>Vatch Video Solution</b>						

**Based On Practice Set 5 3** 

1. A die is thrown. If A is an event of getting an odd number

then write the sample space and event A in set notation.



**2.** A die is thrown, then write the sample space (S) and number of sample points n(S) and also write event A of getting numbers multiple of 3 on the upper face and write n(A).



**3.** Two coins are tossed sumultaneoulsy . Write the sample space (S), n(S), the following event A using set notation and n(A), where 'A is the event of getting at least one head .



**4.** Two coins are tossed simultaneoulsy. Write the sample space (S) and number of sample points n(S) . Also write the following events in the set form and write the number of sample points in each event

Condition for event A : to get at least one tail.



**5.** Two coins are tossed simultaneoulsy. Write the sample space (S) and number of sample points n(S) . Also write the following events in the set form and write the number of sample points in each event

Condition for event B : to get only one head.



**6.** Two coins are tossed simultaneoulsy. Write the sample space (S) and number of sample points n(S) . Also write the following events in the set form and write the number of sample points in each event

Condition for event C : to get at most one tail



7. Two coins are tossed simultaneoulsy. Write the sample space (S) and number of sample points n(S) . Also write the following events in the set form and write the number of sample points in each event

Condition for event D : to get no head.



**1.** A box contains 20 cards marked with numbers 1 to 20. One card is drawn at random. Write the event A using the number on the card is multiple of 4. Write S, n(S), A and n(A).



**2.** There are 30 tickets numbered from 1 to 30 in a box and a ticket is drawn at random. If A is the event that the number on the ticket is a perfect square, then write the sample space S, n(S), the event A and n(A).



**3.** A beg contains 50 cards . Each card bears only one number from 1 to 50 . One card is drawn at random from the beg . Write the sample space. Also write the events A, B and find the number of sample points in them.

Condition for event A : the number on the card is divisible by 6.



**4.** A beg contains 50 cards . Each card bears only one number from 1 to 50 . One card is drawn at random from the beg . Write the sample space. Also write the events A, B and find the number of sample points in them.

Condition for event B : the number on the card is a complete square.



**5.** A sanitation committee of 2 members is to be formed form 3 boys and 2 girls . Write sample space 'S' and number of sample points n(s). Also write the following events in set form and number of sample points in the event

Condition for event A : at least one girl must be a member of the committee.



**6.** A sanitation committee of 2 members is to be formed form 3 boys and 2 girls . Write sample space 'S' and number of sample points n(s). Also write the following events in set form and number of sample points in the event

Condition for event B : Committee must be of one boy one girl .



**7.** A sanitation committee of 2 members is to be formed form 3 boys and 2 girls . Write sample space 'S' and number of sample points n(s). Also write the following events in set form and number of sample points in the event

Condition for event C : Committee must be of boys only.



**8.** A sanitation committee of 2 members is to be formed form 3 boys and 2 girls . Write sample space 'S' and number of sample points n(s). Also write the following events in set form and number of sample points in the event Condition for event D : At the most one girl should be a member of the committee.



**9.** Write sample space 'S' and number of sample point n(S) for each of the following experiments. Also write events P, Q, R in the set form and write n(P), n(Q), n(R).

Two coins are tossed simultaneoulsy . Condition for event P : To get head on both coins . Conditon for event Q : To get tail on first coins.



10. Write sample space 'S' and number of sample point n(S) for

each of the following experiments. Also write events P, Q, R in

the set form and write n(P), n(Q), n(R).

Three coins are tossed simultaneoulsy .

Codition for event P : To get at least one tail .



**11.** Write sample space 'S' and number of sample point n(S) for each of the following experiments. Also write events P, Q, R in the set form and write n(P), n(Q), n(R).

A box contains 20 balls, bearing only one number from 1 to 20 on each . If one ball is drawn at random.

Condition for event P : Number of the ball is divisible by 4 .

Condition for event Q : Number on the ball is prime number

Condition for event R : Number on the ball is an odd number less than 15 .



**12.** Write sample space 'S' and number of sample point n(S) for each of the following experiments. Also write events P, Q, R in the set form and write n(P), n(Q), n(R).

Two digit number are formed using digits 2, 3, 5, 7, 9 without

repetition of the digits.

Condition for event P : The number formed is odd .

Condition for event Q : The number is a multiple of 5.

Condition for event R : The number The number formed is greater than 75.

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**13.** Write sample space 'S' and number of sample point n(S) for each of the following experiments. Also write events P, Q, R in the set form and write n(P), n(Q), n(R).

Form n three girls and one boy, committee of two pwesons is to be formed .

Condition for event P : There must be at least one boy in the committee.

condition for event Q : There must be two girls in the committee.

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14. Two dice are rolled, write the sample space 'S' and number of sampkle points n(S). Also write events and number of sample points in the event according to the given condition
Sum of the digits on upper face is a prime number



**15.** Two dice are rolled, write the sample space 'S' and number of sampkle points n(S). Also write events and number of sample points in the event according to the given condition Sum of the digits on the upper face is multiple of 5.

**16.** Two dice are rolled, write the sample space 'S' and number of sampkle points n(S). Also write events and number of sample points in the event according to the given condition Sum of the digits on the upper face is 25.



17. Two dice are rolled, write the sample space 'S' and number of sampkle points n(S). Also write events and number of sample points in the event according to the given condition
Digit on the upper face of the first die is less than the digit on the second die .



**1.** Find the probability of the follwing, when one coin is tossed.

### Getting head

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2. Find the probability of the follwing, when one coin is tossed.

Getting tail

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3. If three coins are tossed, find the probabilty of the following

events

Getting at least one tail.





4. If three coins are tossed, find the probabilty of the following

events

Getting head on third coin.



**5.** A die is thrown, then find the probability of the following events:

A is an Event : getting a number divisible by 3.

B is an Event : getting a number less than 5.



6. If one die is rolled then find the probability of each of the

following events

Number on the upper face is prime

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7. If one die is rolled then find the probability of each of the

following events

Number on the upper face is even.

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8. If one die is rolled then find the probability of each of the

following events

Getting a number which is less than 7 on the upper face.





9. If one die is rolled then find the probability of each of the

following events

Getting an odd number .



10. Two dice are thrown . Find the probability of the following

events

The product of number on their upper faces is 12.



11. Two dice are thrown . Find the probability of the following

events

The product of the numbers on their upper faces is 10.

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12. Two dice are thrown . Find the probability of the following

events

The sum of the numbers on their upper faces is multiple of 9

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**13.** Two dice are thrown . Find the probability of the following events

The sum of the numbers on their upper faces is at least 9.





14. Two dice are thrown . Find the probability of the following

events

The sum of the numbers on their upper faces is 15.



15. Two dice are thrown . Find the probability of the following

events

The number on the upper face of the second die is greater than

the number on the upper face of the first die

**16.** A card is drawn at random from a well shuffled pack of 52 playing cards. Find the probability of the events that the card drawn is

a black card .

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**17.** A card is drawn at random from a well shuffled pack of 52 playing cards. Find the probability of the events that the card drawn is

A diamond card .



**18.** A card is drawn at random from well-shuffled pack of 52 cards. Find the probability of getting a red card.



**19.** A card is drawn ar random from a well shuffled pack of 52 playing cards. Find the probability of the events that the card drawn is

A face card .

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**20.** A card is drawn ar random from a well shuffled pack of 52 playing cards. Find the probability of the events that the card

drawn is

A king



**21.** A box contains 5 strawberry chocolates, 6 coffee chocolates and 2 peppermint chocolates . Find the probability of each of the pollowing events, if one fothe chocolates is picked from the box at random .

It is a coffee chocolate.

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**22.** A box contains 5 strawberry chocolates, 6 coffee chocolates and 2 peppermint chocolates . Find the probability of each of the pollowing events, if one fothe chocolates is picked from the

box at random.

it is a peppermint chocolate .



**23.** In a cricket team there are 6 batsmen 4 bowlers and 1 wicketkeeper. Out of these one player is to be selected at random as captain. Find the probabiliy of the selection that A bowler will be selected



**24.** In a cricket team there are 6 batsmen 4 bowlers and 1 wicketkeeper. Out of these one player is to be selected at random as captain. Find the probabiliy of the selection that The wicketkeeper will be selected.



25. A beg contains 3 yellow, 4 blue and 5 white balls. One ball is

drawn at random . Find the probability that it is

blue



26. A beg contains 3 yellow, 4 blue and 5 white balls. One ball is

drawn at random . Find the probability that it is

Yellow or white



27. A beg contains 3 yellow, 4 blue and5 white balls. One ball is drawn at random . Find the probability that it is Not white.

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28. There are 40 tickets numbered 1 to 40 in a box. A ticket is

drawn. What is the probability that the ticket drawn

Bears an odd number.

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29. There are 40 tickets numbered 1 to 40 in a box. A ticket is

drawn. What is the probability that the ticket drawn

Bears a number which is a perfect square.



**30.** A box contains 20 cards marked with the number 1 to 20 . One card is drawn from this box at random. What is the probability of the following events

The number on the card is a prime number



**31.** A box contains 20 cards marked with the number 1 to 20. One card is drawn from this box at random. What is the probability of the following events

The number on the card is a perfect square.



**32.** There are three boys and two girls. A committee of two is to

be formed. Find the probability of the following events:

Event A : The committee contains at least one boy.

Event B : The committee contains one boy and one girl.



**33.** Two digit numbers are formed from the digits 0, 1, 2, 3, 4 where are not repeated. Find the probability of each of the events that

the number formed is an even number.



**34.** Two-digit numbers are formed from the digits 0, 1, 2, 3, 4 where the digits are not repeated. Find the probability that the

number so formed is a prime numbers.





**36.** In a certain race there are three boys A, B, C. The winning probability of A is twice than B and the winning probability of B is twice than C. If P(A) + P(B) + P(C) = 1, then find the probability of each boy.



1. Choose the correct alternative .

A die is rolled. What is the probability that the number appearing on upper face is greater than 4 ?

A. 
$$\frac{1}{2}$$
  
B.  $\frac{5}{2}$   
C.  $\frac{2}{5}$   
D.  $\frac{1}{3}$ 

Answer: D



2. Choose the correct alternative .

If n (S) = 36, P (A) = 
$$\frac{5}{12}$$
, then n (A) = ?

A. 15

B. 
$$\frac{12}{5}$$
  
C.  $\frac{5}{2}$   
D.  $\frac{1}{3}$ 

Answer: A



3. Choose the correct alternative .

If two digit numbers are formed using the digits 1, 2, 3, 4 without repeating them, then n (S) =

A. 16

B. 20

C. 12

D. 25

Answer: C



4. Solve the following questions.

Complete the following activity

Complete the following table

Sr. No.	Random experiment	Sample space	Number of sample points in S
1.	One coin is tossed.	$S = \{H, T\}$	n(S) =
2.	Two coins are tossed.	S =	n(S) =
3.	Three coins are tossed.	S = {,THH, HTT, THT,TTH, TTT }	n(S) = 8
4.	A die is thrown.		n(S) =



If one coin and one die thrown simulaneously find the probability of getting even numbre and tail.



6. Solve the following questions.

There are 3 red 7 green and 12 white marbles in a jar. One marble is drawn at random. Find the probability that marble drawn in not green

drawn in not green.



There are 60 tickets numbered from 1 to 60 in box . A ticket is

drawn at random . What is the probability that the ticket drawn,

bears a prime number ?

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8. Solve the following questions.

If two dice are rolled simultaneously, find the probability of the

following events .

The product of the digits on the upper faces is 14.



If two dice are rolled simultaneously, find the probability of the

following events .

The sum of the digits on the upper facesis multiple of 6.

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10. Solve the following questions.

If two dice are rolled simultaneously, find the probability of the

following events .

The digit on the first die is greater than the digit on second die



A card is drawn at random from a pack of well shuffled 52 playing cards. Find the probability that the card drawn is A red picture card.

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**12.** Solve the following questions.

A card is drawn at random from a pack of well shuffled 52 playing cards. Find the probability that the card drawn is

A club card.



A card is drawn at random from a pack of well shuffled 52 playing cards. Find the probability that the card drawn is A queen of spade.

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14. Solve the following questions.

The diameter of a circular garden is 70. m . There is square shape fountain in a garden having side 20 m . If a ball falls in the garden . Find the probability that the ball falls in the fountain.



Find the probability of getting 53 Fridays in a year.



**16.** A jar contains 24 marbles, some are green and others are blue. If a marble is drawn at random from the jar, the probability that it is green is  $\frac{2}{3}$ . Find the number of blue marbles in the jar.

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**17.** Solve the following questions.

In a random experiment of choosing a card from a well shuffled pack of cards, the possiblity of expected outcome for which one is the most ?

- a Geiiing a red face card
- b. Getting a black ace
- c . Getting a black king
- d. Getting a number card of diamond
- e. Getting a jack or a king

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**18.** Basketball players John, Vasim, Akash were practising the ball drop in the basket. The probabilities of success for John, Vasim and Akash are  $\frac{4}{5}$ ,0.83 and 58% respectively. Who had the greatest probability of success?

1. A coin is tossed once. What is the probaility of getting a head

?

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**2.** A coin is tossed twice. What is the probability of getting exactly one head ?

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**3.** Throw a die,once. What are the different possibilites of getting dots on te upper face ?

**4.** Do the following activities.

```
Total number of students in your class , n(S) = \Box
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Number of students from your class , wearing spectacles n (A) =

□ Probability of a randomly selets student wearing spectacles, P (A) = □ Probability of a randomly selected student not wearing spectacles , P (B) = □

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5. Complete the following activities.

(ii) fill in the blanks





## **Try This**

1. In Which of the following experiments possibility of expected

outcome is more ?

- (i) Getting I on the upper face when a die is thrown.
- (ii) Getting head by tossing a coin.

