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## MATHS

## BOOKS - MAXIMUM PUBLICATION

## PROBABILITY

Example

1. A die is thrown. describe the following events:

A: a number less than 7.
2. A die is thrown. describe the following events:

B: a number is greater than 7.

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3. A die is thrown. describe the following events:

C: a multiple of 3 .

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4. A die is thrown. describe the following events:

D: a number less than 4.

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5. A die is thrown. describe the following events:

E: An even number greater than 4.
6. Describe the sample space for the following event:

A coin is tossed and a die is thrown.

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7. Describe the sample space for the following event:

A coin is tossed and then a die is rolled.
8. Describe the sample space for the following event:

2 boys and 2 girls are in a Room $X$ and 1 boy and 3 girls in room Y. Specify the sample space for the experiment in which a room is selected and then a person.

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9. Describe the sample space for the following

One die of red colour, one of 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 upper most face is noted.

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10. Describe the sample space for the following event:

An experiment consists of tossing a coin and
then throwing it second time if a head occur. If
a tail occurs on the first toss, then a die is rolled one.

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11. Describe the sample space for the following event:

A coin is tossed. If the outcome is a head, a die
is thrown. If the die shows up an even number, the die is thrown again.
12. A die is rolled. Let E be the event "die shows
$4^{\prime \prime}$ and F be the event "die shows even number". are E and F mutually exclusive?

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13. Two die are thrown simultaneously. Find the probability of getting 4 as the product.
14. A coin is tossed twice,what is the probability that atleast one tail occurs?

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15. A die is rolled,find the probability of following event:

A prime number will appear.

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16. A die is rolled,find the probability of following event:

A number greater than or equal to 3 will appear.

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17. A die is rolled,find the probability of following event:

A number less than or equal to one will appear.
18. A die is rolled,find the probability of
following event:
A number more than 6 will appear.

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19. A die is rolled,find the probability of
following event:
A number less than 6 will appear.
20. One card is drawn from a pack of 52 cards, each of the 52 cards being equally likely to be drawn. Find the probability that
the card drawn is black.

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21. One card is drawn from a pack of 52 cards, each of the 52 cards being equally likely to be
drawn. Find the probability that
the card drawn is a king.

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22. One card is drawn from a pack of 52 cards, each of the 52 cards being equally likely to be drawn. Find the probability that the card drawn is black and a king.
23. One card is drawn from a pack of 52 cards,
each of the 52 cards being equally likely to be drawn. Find the probability that the card drawn is either black or a king.

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24. Given $P(A)=\frac{3}{5}$ and $P(B)=\frac{1}{5}$

Find $P(A$ or $B)$, if $A$ and $B$ are mutually exclusive events.
25. Two dice are thrown. The events $A, B$ and $C$ are as follows:

A: getting an even number on the first die.

B: getting an odd number on the first die.

C: getting sum of the numbers on the dice $\leq 5$.

Describe the events.

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26. A bag contains 6 red and 12 green balls.
two balls are drawn. What is the probability
that one is red and other is green?

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27. In class XI of a school $40 \%$ of the students
study Mathematics and $30 \%$ study Biology,
$10 \%$ of the class study both Mathematics and

Biology. If a student is selected at random
from the class, find the probability that he will be studying mathematics or Biology.

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28. Two die are rolled, $A$ is the event that the sum of the numbers shown on the two die is 7
and $B$ is the event that at least one of the die
shows up 2. Are the two events $A$ and $B$ are Mutually exclusive.

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29. Two die are rolled, $A$ is the event that the sum of the numbers shown on the two die is 7 and $B$ is the event that at least one of the die shows up 2. Are the two events $A$ and $B$ are Exhaustive.

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30. A letter of the word $A S S A S S I N A T I O N$ are randomly chosen. Find the probability that letter is a vowel.
31. A letter of the word ASSASSINATION are randomly chosen. Find the probability that letter is a consonant.

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32. If $E$ and $F$ are events such that
$P(E)=\frac{1}{4}, P(F)=\frac{1}{2}$,and
$p(E$ and $F)=\frac{1}{8}$. find $P(E$ or $F)$.
33. If $E$ and $F$ are events such that
$P(E)=\frac{1}{4}, P(F)=\frac{1}{2}$,and
$p(E$ and $F)=\frac{1}{8}$.find $\mathrm{P}($ not E and not F$)$.

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34. If $\frac{2}{11}$ is the probability of an event $A$,then what is the probability of the event 'not $\mathrm{A}^{\prime}$ ?

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35. if $P(A)=\frac{3}{5}$ and $P(B)=\frac{1}{5}$, then find
$P(A \bigcup B)$, if A and B are mutually exclusive events.

## D Watch Video Solution

36. A coin is tossed twice. What is the probability that atleast one tail occurs?

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37. A bag contains 9 balls of which 4 are red, 3
are blue and 2 are yellow. the balls are similar
in shape and size. A ball is drawn at random
from the bag. Calculate the probability that the ball drawn will be red.

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38. A bag contains 9 balls of which 4 are red, 3
are blue and 2 are yellow. the balls are similar
in shape and size. A ball is drawn at random
from the bag. Calculate the probability that the ball drawn will be not yellow .

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39. A bag contains 9 balls of which 4 are red, 3
are blue and 2 are yellow. The balls are similar
in shape and size. A ball is drawn at random
from the bag. Calculate the probability that the ball drawn will be either red or yellow.

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40. $A$ and $B$ are two events in a random experiment such that $P(A)=\frac{1}{3}, P(B)=\frac{1}{5}$,
$P(A \bigcup B)=\frac{7}{15}$ Find $P(A \bigcap B)$

## D Watch Video Solution

41. $A$ and $B$ are two events in a random
experiment such that $P(A)=\frac{1}{3}, P(B)=\frac{1}{5}$,
$P(A \bigcup B)=\frac{7}{15}$ Find $P\left(A^{\prime}\right)$

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42. The probability of a sure event is...

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43. Two dice are thrown together. What is the probability that the sum of the numbers on the two faces is 8 ?

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44. If $A$ and $B$ are two events such that
$P(A)=0.42, P(B)=0.48$
and
$P(A \bigcap B)=0.16$ then, find: $\mathrm{P}($ not A$)$.

## - Watch Video Solution

45. If $A$ and $B$ are two events such that
$P(A)=0.42, P(B)=0.48$
and
$P(A \bigcap B)=0.16$ then, find: $\mathrm{P}(\operatorname{not} \mathrm{B})$.

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46. If $A$ and $B$ are two events such that
$P(A)=0.42, P(B)=0.48$
$P(A \bigcap B)=0.16$ then, find: $P(A \bigcup B)$.

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47. Two student A and B appeared in an examination. The probability that A passes the examination is 0.25 and that $B$ passes is 0.45 .

Also the probability that both will pass is 0.1.
Find the probability that: Both will not pass.
48. Two student $A$ and $B$ appeared in an examination. The probability that A passes the examination is 0.25 and that $B$ passes is 0.45 .

Also the probability that both will pass is 0.1 .

Find the probability that: Only one of them will pass.

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49. If $M$ and $N$ are events such that
$P(M)=\frac{1}{4}, P(N)=\frac{1}{2}, P(M \bigcap N)=\frac{1}{6}$.

Find $P(M$ or $N)$.

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50. If $M$ and $N$ are events such that
$P(M)=\frac{1}{4}, P(N)=\frac{1}{2}, P(M \bigcap N)=\frac{1}{6}$
Find $P(\operatorname{not} M$ and $\operatorname{not} N)$.

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51. $A$ and $B$ are two events associated with a
random experiment such that $P(A)=0.3$,
$P(B)=0.4 \quad$ and $\quad P(A \bigcup B)=0.5$. Find $P(A \bigcap B)$.

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52. $A$ and $B$ are two events associated with a random experiment such that $P(A)=0.3$, $P(B)=0.4 \quad$ and $\quad P(A \bigcup B)=0.5$. Find $P\left(A^{\prime} \bigcup B^{\prime}\right)$.

## - Watch Video Solution

53. A coin is tossed twice. What is the probability that at least one tail occurs?

## D Watch Video Solution

54. If $A$ and $B$ are two events in a random experiment, then
$P(A)+P(B)-P(A \bigcap B)=\ldots . .$.

## D Watch Video Solution

55. Given $P(A)=0.5, \quad P(B)=0.6$ and $P(A \bigcap B)=0.3$. Find $\quad P(A \bigcup B)$ and $P\left(A^{\prime}\right)$

## - Watch Video Solution

56. Two dice are thrown simultaneously. Find the probability of getting a doublet.

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57. The probability that Ramu pass the examination in both mathematics and Physics
is 0.5 , the probability of passing neither Mathematics nor Physics is 0.1,the probability of passing Mathematics is 0.75 What is the probability of passing Mathematics or Physics?

## D Watch Video Solution

58. The probability that Ramu pass the examination in both mathematics and Physics
is 0.5 , the probability of passing neither Mathematics nor Physics is 0.1 ,the probability of passing Mathematics is 0.75 What is probability of passing Physics?

## D Watch Video Solution

59. If $A$ and $B$ are two events such that
$P(A)=\frac{1}{4},, P(B)=\frac{1}{2}, \quad P(A \bigcap B)=\frac{1}{8}$ then find, $P\left(A^{\prime}\right)$

## D Watch Video Solution

60. If $A$ and $B$ are two events such that
$P(A)=\frac{1}{4},, P(B)=\frac{1}{2}, \quad P(A \bigcap B)=\frac{1}{8}$
then find, $P(A \bigcup B)$.

## D Watch Video Solution

61. If $A$ and $B$ are two events such that
$P(A)=\frac{1}{4},, P(B)=\frac{1}{2}, \quad P(A \bigcap B)=\frac{1}{8}$
then find, $P\left(A^{\prime} \bigcap B\right)$

## D Watch Video Solution

62. The number of outcomes in the sample space of the random experiment of throwing two dice is....a)6^3
A. $6^{3}$
B. 6
C. $6^{2}$
D. 12

Answer: C

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63. Two students, Anil and Ashima appeared in 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 that both will qualify the examination is 0.02 . Find the probability that both will not qualify the examination.

## - Watch Video Solution

64. If $A$ and $B$ are mutually exclusive and exhaustive events then
$P(A)+P(B)=\ldots . . . \mathrm{A})$ O B) 1 C) $\frac{1}{2}$ D) 2
A. 0
B. 1
C. $\frac{1}{2}$
D. 2

Answer: B
65. Two student $A$ and $B$ appeared in an examination. The probability that A will qualify the examination is 0.25 and $B$ will qualify is 0.45 and both will qualify the examination is 0.1. Find the probability that:

Both $A$ and $B$ will not qualify the examination.

## D Watch Video Solution

66. Two student $A$ and $B$ appeared in an examination. The probability that A will qualify
the examination is 0.25 and $B$ will qualify is
0.45 and both will qualify the examination is
0.1. Find the probability that:

One of them will qualify the examination.

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67. In a random experiment, 6 coins are tossed
simultaneously. Write the number of sample points in the sample space.A) $\left.\left.2^{2} B\right) 2^{4} \mathrm{C}\right) 2^{6}$ D) $2^{8}$
A. $2^{2}$
B. $2^{4}$
C. $2^{6}$
D. $2^{8}$

Answer: C

## D Watch Video Solution

68. Given that $P(A)=0.5, P(B)=0.6$,
$P(A \bigcap B)=0.3$ Find $P\left(A^{\prime}\right), P(A \bigcup B)$,
$P\left(A^{\prime} \bigcap B^{\prime}\right)$ and $P\left(A^{\prime} \bigcup B^{\prime}\right)$.
69. If $P\left(A^{\prime}\right)=0.8$, write the value of $P(A)$.

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70. In a class of 60 students, 30 selected for

NCC, 32 selected for NSS and 24 selected for both NCC and NSS. If one of these students is selected at random,find the probability that: the students selected for NCC or NSS.
71. In a class of 60 students, 30 selected for

NCC, 32 selected for NSS and 24 selected for both NCC and NSS. If one of these students is selected at random,find the probability that:the students has selected neither NCC nor NSS.

## D Watch Video Solution

72. Two dice are thrown. Let A be an event to get an even number on first die and $B$ be an
event to get sum of the numbers obtained on two dice is $8 . W$ rite the sample space.

## D Watch Video Solution

73. Two dice are thrown. Let $A$ be an event to get an even number on first die and $B$ be an event to get sum of the numbers obtained on
two dice is 8 .Write the outcomes favorable to the event $A$, the event $B$.

## D Watch Video Solution

74. Two dice are thrown. Let $A$ be an event to get an even number on first die and $B$ be an event to get sum of the numbers obtained on two dice is 8.Find $\mathrm{P}(\mathrm{A}$ or B$)$

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75. A box contains 6 red, 5 blue and 4 green balls. 3 balls are drawn from the box. Find the probability that All are blue.
76. A box contains 6 red, 5 blue and 4 green balls. 3 balls are drawn from the box. Find the probability that All balls are either red or blue.

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77. A box contains 6 red, 5 blue and 4 green
balls. 3 balls are drawn from the box. Find the probability that Atleast one green ball.

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78. A coin is tossed repeatedly until a tail comes up. What is the sample space for this random experiment?

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79. Three coins are tossed once. Find the probability of getting no head.

## D Watch Video Solution

80. Three coins are tossed once. Find the probability of getting exactly one head.

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81. Three coins are tossed once. Find the probability of getting atleast one head.

- Watch Video Solution

82. Three coins are tossed once. Find the probability of getting atleast two heads.

## D Watch Video Solution

83. If $E$ and $F$ are two events such that $P\left(E^{\prime}\right)=\frac{13}{15}, P\left(F^{\prime}\right)=\frac{8}{15}$ and $P(E$ and F$)=$ $\frac{1}{15}$, find $P(E), P(F)$.

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84. If $E$ and $F$ are two events such that $P\left(E^{\prime}\right)=\frac{13}{15}, P\left(F^{\prime}\right)=\frac{8}{15}$ and $P(E$ and $F)=$ $\frac{1}{15}$, find $P(E$ or $F)$.

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85. If $E$ and $F$ are two events such that
$P\left(E^{\prime}\right)=\frac{13}{15}, P\left(F^{\prime}\right)=\frac{8}{15}$ and $P(E$ and $F)=$ $\frac{1}{15}$, find $P($ not $E$ and not $F)$.

## D Watch Video Solution

86. John and Mary appeared in an examination.

The probability that John will qualify the examination is 0.05 and that Mary will qualify the examination is 0.10 . The probability that both will qualify is 0.02 . Find the probability that

John or Mary qualifies the examination.

## - Watch Video Solution

87. John and Mary appeared in an examination.

The probability that John will qualify the
examination is 0.05 and that Mary will qualify
the examination is 0.10 . The probability that both will qualify is 0.02 . Find the probability that

Both John and Mary will not qualify the examination.

## D Watch Video Solution

88. John and Mary appeared in an examination.

The probability that John will qualify the examination is 0.05 and that Mary will qualify
the examination is 0.10 . The probability that both will qualify is 0.02 . Find the probability that

Atleast one of them will not qualify the examination.

## D Watch Video Solution

89. In a class of 60 students, 30 opted for NCC,

32 opted for NSS and 24 opted for both NCC
and NSS. If one of these students is selected at
random, find:

The probability that the student opted for NCC and NSS.

## D Watch Video Solution

90. In a class of 60 students, 30 opted for NCC,

32 opted for NSS and 24 opted for both NCC and NSS. If one of these students is selected at random, find:
the probability that the student has opted for exactly one of NCC or NSS.
91. A coin is tossed repeatedly until a head comes up. Write the sample space.

## - Watch Video Solution

92. If $A$ and $B$ are two events in a random
experiment, then
$P(A \bigcup B)=P(A)+P(B)$

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93. 

Let
$P(A)=\frac{1}{3}, P(B)=\frac{1}{5}$,
$P(A \bigcap B)=\frac{1}{5}$
Find $P(\operatorname{not} A$ and not $B)$.

## D Watch Video Solution

94. A bag contains 9 discs of which 4 are red, 3
are blue and 2 are yellow. A disc is drawn at
random from the bag. Calculate the probability that it will be red.

## D Watch Video Solution

95. A bag contains 9 discs of which 4 are red, 3
are blue and 2 are yellow. A disc is drawn at random from the bag. Calculate the probability that it will be Not yellow.

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96. Math the following:
\(\left.\begin{array}{|l|l|l|}\hline a) \& \mathbf{P}(\mathbf{A})=\frac{1}{4} then \mathbf{P}(not \mathbf{A})=··· . . \& \frac{1}{2} <br>
\hline b) \& If \mathbf{P}(\mathbf{A})=\frac{1}{3}, \mathbf{P}(\mathbf{B})=\frac{1}{4} and <br>
P(A \cup B)=\frac{1}{12} the <br>

P(A \cap B)=···\end{array}\right]\)\begin{tabular}{l|l|}

\hline c) \& | If $\mathbf{S}$ is the sample space |
| ---: |
| then $\mathbf{P}(\mathbf{S})=\ldots . . . . . .$. | <br>

\hline \& $\frac{3}{4}$ <br>
\hline
\end{tabular}

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97. Two dice are thrown simultaneously. Find the probability of getting a doublet.

98. Two dice are thrown at random. Find the probability of getting sum of the numbers on the dice 8 .

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