Name of the Bundle	Advanced Bundle V1	Subject	Aptitude
Topic	Probability	Last updated on	14 October 2024

CONCEPT 1 – COINS RELATED PROBLEMS

1) When a coin is tossed, what would be your probability of receiving a tail?
   a) 30%
   b) 40%
   c) 50%
   d) 60%

ANS: c) 50%

Explanation:

Let S = Total No of Possible outcomes.

S = {H,T}

Let E = Number of Favourable outcomes.

Then E = {T}.

P(E) = n(E)/n(S) = 1/2 = 50%.

2) When two unbiased coins are tossed, the probability of getting both heads or both tails is _____.
   a) 1/4
   b) 2/4
   c) 3/4
   d) 1/2

ANS: d) 1/2

Explanation:

Let S = Total No of Possible outcomes.
S = {TT, HH, TH, HT}
Let E = Number of Favourable outcomes.
Then E = {TT, HH}.
P(E) = n(E)/n(S) = 2/4 = 1/2.

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3) Two unbiased coins are tossed. The probability of obtaining at least one head is____.

a) 1/3
b) 2/3
c) 1/4
d) 3/4

ANS:d) 3/4

Explanation:

Let S = Total No of Possible outcomes.

S = {TT, HH, TH, HT}

Let E = Number of Favourable outcomes.

Then E = {TH, HH, HT}.

P(E) = n(E)/n(S) = **3/4**.

4) Three unbiased coins are tossed. What is the probability of getting at most two heads?

a) 3/4
b) 1/4
c) 3/8
d) 7/8

ANS: d) 7/8

Explanation:

Let S = Total No of Possible outcomes.

S = {TTT, TTH, THT, HTT, THH, HTH, HHT, HHH}

Let E = Number of Favourable outcomes.

Then E = {TTT, TTH, THT, HTT, THH, HTH, HHT}.

P(E) = n(E)/n(S) = 7/8.

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5) In tossing three coins at a time, the probability of getting at least one heads is _____.

a) 7/8
b) 1/2
c) 1/8
d) 3/8

ANS: a) 7/8

Explanation:

Let S = Total No of Possible outcomes.

S = {TTT, TTH, THT, HTT, THH, HTH, HHT, HHH}

Let E = Number of Favourable outcomes.

Then E = {TTH, THT, HTT, THH, HTH, HHT, HHH}.

P(E) = n(E)/n(S) = 7/8.

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CONCEPT 2 – DICE RELATED PROBLEMS

6) If the outcome is an odd number when a dice is rolled, then calculate the probability that it is a prime number.

a) 2/6
b) 2/3
c) 1/3
d) 1/6

ANS: b) 2/3

Explanation:

When a die is thrown possible outcomes are { 1 , 2 , 3 , 4 , 5 , 6 }.

According to this problem a die is thrown. Possible outcomes are { 1 , 3 , 5 }.

Favourable Events = { 3, 5 }.

Total No of Events = { 1 , 3 , 5 }

P(E) = n(E)/n(S) = 2/3.

7) A dice is thrown, what is the probability that the number obtained is a prime number.

a) 1/6
b) 1/8
c) 1/3
d) 1/2

ANS: d) 1/2

Explanation:

Favourable Events = { 2, 3, 5 }.

Total No of Events = { 1, 2, 3, 4, 5, 6 }

P(E) = n(E)/n(S) = 3/6 = 1/2.

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8) What is the probability of getting a sum 9 from two throws of a dice?

a) 1/6
b) 1/8
c) 1/9
d) 1/12

ANS: c) 1/9

Explanation:

In two throws of a dice, n(S) = (6 x 6) = 36.

Let E = Event of getting a sum 9 = {(3, 6), (4, 5), (5, 4), (6, 3)}.

P(E) = n(E)/n(S) = 4/36 = 1/9.

9) When we roll two dice simultaneously, the probability that the first roll is 2 and the second is 6?

a) 1/6
b) 1/36
c) 1/12
d) 1/4

ANS: b) 1/36

Explanation:

In two throws of a dice, n(S) = (6 x 6) = 36.

Let E = Event of getting the first roll is 2 and the second is 6 = {2, 6}.

P(E) = n(E)/n(S) = 1/36.

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10) Find the probability of throwing a total of 8 in a single throw with two dice.

a) 1/36
b) 5/36
c) 25/36
d) 12/36

ANS: b) 5/36

Explanation:

In two throws of a dice, n(S) = (6 x 6) = 36.

Let E = Event of getting a total of 8 = {(2, 6), (6, 2), (3, 5), (5, 3), (4, 4)}.

P(E) = n(E)/n(S) = **5/36**

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CONCEPT 3 – CARDS (A PACK OF 52) RELATED PROBLEMS

11) A card is drawn from a pack of 52 cards. What is the probability that the card is a Queen?

a) 1/52
b) 1/4
c) 1/16
d) 1/13

ANS: d) 1/13

Explanation:

Total possible outcomes = 52.

Favorable outcomes = 4.

Probability = 4 / 52 = 1 / 13

12) A card is drawn from a well shuffled deck of 52 cards. Find the probability that it is a Jack.

a) 1/26
b) 2/13
c) 1/13
d) 3/52

ANS: c) 1/13

Explanation:

Total number of cards in the Deck = 52.

Number of Jacks = 4 (Jack of club, spade, diamond, heart)

Favorable outcomes = 4.

Probability = 4 / 52 = **1/13.**

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13) A card is drawn from a well shuffled deck of 52 cards. Find the probability that it is an ace of Spade.

a) 1/52
b) 1/26
c) 1/13.
d) 12/52

ANS: a) 1/52

Explanation:

Total number of cards in the Deck = 52.

Number of an ace of spade = 1

Favorable outcomes = 1.

Probability = **1/52.**

14) A card is drawn from a well shuffled deck of 52 cards. Find the probability that it is a Queen.

a) 1/13
b) 1/26
c) 3/13
d) 2/13

ANS: a) 1/13.

Explanation:

Total number of cards in the Deck = 52.

Number of Queen = 4

Favorable outcomes = 4.

Probability = 4 / 52 = **1/13.**

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15) A card is drawn from a well shuffled deck of 52 cards. Find the probability that it is a black king.

a) 3/26
b) 1/52
c) 1/13
d) 1/26

ANS: d) 1/26.

Explanation:

Total number of cards in the Deck = 52.

Number of black king = 2

Favorable outcomes = 2.

Probability = 2 / 52 = **1/26.**

16) Two cards are drawn in succession from a pack of 52 cards, without replacement. What is the probability that the first is a Queen and the second is a Jack of a different suit?

a) 1/52
b) 1/13
c) 4/13
d) 1/221

ANS: d) 1/221

Explanation:

- The probability of first Queen = 4 / 52
- The probability of Second Jack of different suit = 3 / 51
- Required Probability = (4/52) x (3/51) = (1/13) x (1/17) = (1/221)

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17) One card is drawn at random from a pack of 52 cards. What is the probability that the card drawn is a face card (Jack, Queen and King only)?

a) 1/13
b) 3/13
c) 1/4
d) 9/52

ANS: b) 3/13.

Explanation:

Total possible outcomes = 52.

Favorable outcomes = 12.

Probability = 12 / 52 = **3 / 13.**

18) Three cards are drawn together from a pack of 52 cards at random. What is the probability that all the cards are Diamonds?

a) ${}^{4}C_{3} / {}^{2}C_{3}$
b) ${}^{13}C_{3} / {}^{52}C_{3}$
c) ${}^{26}C_{3} / {}^{52}C_{3}$
d) ${}^{8}C_{3} / {}^{52}C_{3}$

ANS: b) ${}^{13}C_{3} / {}^{52}C_{3}$

Explanation:

There are 13 diamonds. Three diamonds out of 13 diamonds can be taken out in ${}^{13}C_{3}$ ways.

Total number of sample spaces = ${}^{52}C_{3}$

Required probability = ${}^{13}C_{3} / {}^{52}C_{3}$

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19) If from a pack of 52 playing cards, 1 card is drawn at random. What is the probability that it is either a king or a queen?

a) 1/121
b) 2/13
c) 2/5
d) 3/8

ANS: b) 2/13

Explanation:

Total possible outcomes = 52.

Favorable outcomes = 4 kings + 4 queens.

Probability = 8 / 52 = **2 / 13.**

CONCEPT 4 – GENERAL TYPE QUESTIONS

20) Determine the probability that a digit chosen at random from the digits 1, 2, 3, …12 will be odd.

a) 1/2
b) 1/9
c) 5/9
d) 4/9

ANS: a) 1/2.

Explanation:

Total possible outcomes = 12.

Favorable outcomes = 6.

Probability = 6/12 = **1/2.**

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21) The probability of a candidate winning an election is 0.85. If so, what is his probability of losing the election?

a) 0.20
b) 0.15
c) 0.85
d) 1

ANS: b) 0.15

Explanation:

Winning or losing a game are complementary events.

P(winning an election) + P(losing an election) = 1

P(losing an election) = 1 - P(winning an election) = 1 - 0.85 = **0.15**

22) A letter of the English alphabet is chosen at random. The Probability of getting a vowel is _____.

a) 5/26
b) 6/25
c) 1/4
d) 5/21

ANS: a) 5/26

Explanation:

Total possible outcomes = 26.

Favorable outcomes = 5.

Probability = 5 / 26.

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23)A bag contains 20 discs numbered 1 to 20. A disc is drawn from the bag. The probability that the number on it is a multiple of 3 is____.

a) 3/10
b) 2/10
c) 1/5
d) 3/15

ANS: a) 3/10.

Explanation:

Total possible outcomes = 20.

Favorable outcomes = 6 (3,6,9,12,15,18).

Probability = 6 / 20 = **3/10.**

24) In a non leap year what is the probability that the last day of the year will be Monday?

a) 2/7
b) 1/7
c) 3/7
d) 4/7

ANS: b) 1/7

Explanation:

Total possible outcomes = 7 days in a week.

Favorable outcomes = 1 (Monday).

Probability = **1/7.**