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# Probability - Aptitude Questions and Answers

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Are you preparing for a job interview or an entrance exam, or want to improve your quantitative skills? If so, then it is important to have a good understanding of probability and how it works.

In this article, we will discuss the most common probability question types commonly asked on quantitative aptitude tests.

**Prerequisites:**

- **Probability in Maths**
- **Tricks To Solve Probability Questions**

## Aptitude Questions on Probability

**Question 1: Three unbiased coins are tossed. What is the probability that at most one had occurred?**

**Solution**:

> S = {HHH, HHT, HTH, THH, HTT, THT, TTH, TTT}
> Favorable outcomes = {HTT, THT, TTH, TTT}
> Total number of outcomes = 8
> Number of favorable outcomes = 4
> Required probability = 4 / 8 = 0.50

**Question 2: Find the probability of getting a red card when a card is drawn from a well-shuffled pack of cards.**

*Total number of outcomes = 52*
*Number of favorable outcomes = Number of red cards = 26*
*Required probability = 26 / 52 = 0.50*

## Question 3: A bag contains 6 white and 4 black balls. Two balls are drawn at random from the bag. Find the probability that both the balls are of the same color.

**Solution**:

*Outcome will be favorable if the two balls drawn are of the same color. => Number of favorable outcomes = $^6C_2 + {}^4C_2 = 21$*
*Total number of outcomes = $^{10}C_2 = 45$*
*Therefore, required probability = 21 / 45 = 7 / 15*

## Question 4: An unbiased die is tossed. Find the probability of getting an even number.

**Solution**:

*S = {1, 2, 3, 4, 5, 6}*
*Favorable outcomes = {2, 4, 6}*

**Question 5: From a bag containing red and blue balls, 10 each, 2 balls are drawn at random. Find the probability that one of them is red and the other is blue.**

**Solution**:

Total number of outcomes = $^{20}C_2$ = 190
Number of favorable outcomes = $^{10}C_1$ x $^{10}C_1$ = 100
Therefore, required probability = 100 / 190 = 10 / 19

## MCQs on Probability

**Question 1:** A card is drawn from the set of 52 cards. Find the probability of getting a queen card.

A. 1/52

B. 1

C. 1/26

D. 1/13

**Answer: D**

**Solution:**

Number of favorable outcomes = 4 (since there are 4 queens in the deck)
Total number of possible outcomes = 52 (since there are 52 cards in total)

Thus, the probability of drawing a queen card is:
P(Queen) = 4/52 = 1/13

**Question 2:** If a coin is thrown two times, what is the probability that at least one tail is obtained?

A) 3/4

B) 1/4

## Answer: A

## Solution:

*Sample space = [TT, TH, HT, HH]*
*Total number of ways = 2 × 2 = 4.*
*Favourite Cases = 3*
*P (A) = 3/4*

**Question 3:** What is the probability of getting a numbered card when drawn from the pack of 52 cards?

A) 1/13

B) 1/9

C) 9/13

D) 11/13

E) None of these

## Answer: C

## Solution:

*Total Cards = 52.*
*Numbered Cards = **9** (2, 3, 4, 5, 6, 7, 8, 9, 10) in each suit*
*Numbered cards in four suit = 4 × 9 = 36*
*P (E) = 36/52 = 9/13*

**Question 4**: There are 7 purple clips and 5 brown clips. Two clips are selected one by one without replacement. Find the probability that the first is brown and the second is purple.

A) 1/35

B) 35/132

C) 1/132

D) 35/144

E) None of these

*P (B) × P (P) = (5/12) x (7/11) = 35/132*

**Question 5:** Find the probability of getting a sum of 8 when two dice are thrown.

A) 1/8

B) 1/5

C) 1/4

D) 5/36

E) 1/3

**Answer: D**

**Solution:**

*Total number of ways = 6 × 6 = 36 ways.*
*Favorable cases = (2, 6) (6, 2) (3, 5) (5, 3) (4, 4)  --- 5 ways.*
*P (A) = 5/36 = 5/36*

**Question 6:** Find the probability of an honor card when a card is drawn at random from the pack of 52 cards.

A) 4/13

B) 1/3

C) 5/12

D) 7/52

E) None of these

**Answer: A**

**Solution:**

*Honor cards = 4 (A, J, Q, K) in each suit*
*Honor cards in 4 suit = 4 × 4 = 16*
*P (honor card) = 16/52 = 4/13*

A) 1/13

B) 2/13

C) 3/13

D) 4/13

E) 5/13

**Answer: C**

**Solution:**

*Face cards = 3 (J, Q, K) in each suit*
*Face cards in 4 suits = 3 × 4 = 12 Cards.*
*P (face Card) = 12/52 = 3/13*

**Question 8**: If two dice are rolled together then find the probability of getting at least one '3'.

A) 11/36

B) 1/12

C) 1/36

D) 13/25

E) 13/36

**Answer: A**

**Solution:**

*Total number of ways = 6 × 6 = 36.*
*Probability of getting number '3' at least one time*
*= 1 − (Probability of getting no number 4)*
*= 1 − (5/6) × (5/6)*
*= 1 - 25/36*
*= 11/36*

**Question 9**: If a single six-sided die is rolled then find the probability of getting either 3 or 4.

A) 1/2

D) 2/3

E) 1/6

**Answer: B**

**Solution:**

Total outcomes = 6
The probability of getting a single number when rolled a die = 1/6
So, P(3) = 1/6 and P(4) = 1/6
Thus, the probability of getting either 3 or 4
= P(3) + P(4)
= 1/6 + 1/6
= 1/3

**Question 10**: A container contains 1 red, 3 black, 2 pink, and 4 violet gems. If a single gem is chosen at random from the container, then find the probability that it is violet or black.

A) 1/10

B) 3/10

C) 7/10

D) 9/10

E) None of these

**Answer: C**

**Solution:**

Total gems =( 1 + 3 + 2 + 4 ) = 10
probability of getting a violet gem = 4/10
The probability of getting a black gem = 3/10
Now, P ( Violet or Black) = P(violet) + P(Black)
                                            = 4/10 + 3/10
                                            = 7/10

**Question 11**: A jar contains 63 balls ( 1, 2, 3,……., 63). Two balls are picked at random from the jar one after one and without any replacement. What

A) 5/21

B) 3/23

C) 5/63

D) 19/63

E) None of these

**Answer: E**

**Solution:**

*The sum of numbers can be even if we add either two even numbers or two odd numbers.*

*Number of even numbers from 1 to 63 = 31*
*Number of odd numbers from 1 to 63 = 32*

*Probability of getting **two even** numbers = (32/63) \* (31/62) = **16/63***
*Probability of getting **two odd** numbers = (31/63) \* (30/62) = **5/21***

*P(two even numbers **OR** two odd numbers) = 16/63 + 5/21 = **31/63***

**Question 12**: There are 30 students in a class, 15 are boys and 15 are girls. In the final exam, 5 boys and 4 girls made an A grade. If a student is chosen at random from the class, what is the probability of choosing a girl or an 'A-grade student?

A) 1/4

B) 3/10

C) 1/3

D) 2/3

E) None of these

**Answer: D**

**Solution:**

*Here, the total number of boys = 15 and the total number of girls = 15*

*Also, girls getting A grade = 4 and boys getting an A grade = 5*

*Now, an A-grade student chosen can be a girl.*
*So the probability of choosing it = 4/30*

*Required probability of choosing a girl or an A-grade student*
*= 15/30 + 9/30 - 4/30*
*= 1/2 + 3/10 - 2/15*
*= 2/3*

**Question 13**: What is the probability when a card is drawn at random from a deck of 52 cards is either an ace or a club?

A) 2/13

B) 3/13

C) 4/13

D) 5/23

E) None of these

**Answer: C**
**Solution:**

*There are 4 aces in a pack, 13 club cards, and 1 ace of a club card.*

*Now, the probability of getting an ace = 4/52*

*The probability of getting a club = 13/52*
*The probability of getting an ace of the club = 1/52*

*Required probability of getting an ace or a club*
*= 4/52 + 13/52 - 1/52*
*= 16/52*
*= 4/13*

**Question 14**: One card is drawn from a deck of 52 cards well shuffling. Calculate the probability that the card will not be a king.

A) 12/13

B) 3/13

C) 7/13

D) 5/23

**Answer: A**

**Solution:**

*Well-shuffling ensures equally likely outcomes.*
*Total king of a deck = 4*

*The number of favourable outcomes F= 52 – 4 = 48*
*The number of possible outcomes = 52*

*Therefore, the required probability*
*= 48/52 = 12/13*

**Question 15**: If P(A) = 7/13, P(B) = 9/13 and P(A∩B) = 4/13, find the value of P(A|B).

A) 1/9
B) 2/9
C) 3/9
D) 4/9
E) None of these

**Answer: D**

**Solution:**

*P(A|B) = P(A∩B)/P(B) = (4/13)/(9/13) = 4/9.*

**Question 16**: A one-rupee coin and a two-rupee coin are tossed once, and then calculate a sample space.

A) [ HH, HT, TH, TT]
B) [ HH, TT]
C) [ TH, HT]
D) [HH, TH, TT]
E) None of these

**Answer: A**

Solution:

*Tails on both coins = ( T, T) = TT*

*Probability of head on one rupee coin and Tail on the two rupee coins = (H, T) = HT*
*And Tail on one rupee coin and Head on the two rupee coin = (T, H) = TH*

*Thus, the sample space,S = [HH, HT, TH, TT]*

**Question 17**: There are 20 tickets numbered 1 to 20. These tickets are mixed up and then a ticket is drawn at random. Find the probability that the ticket drawn has a number that is a multiple of 4 or 5.

A) 1/4

B) 2/13

C) 8/15

D) 9/20

E) None of these

**Answer: E**

**Solution:**

*Here, S = {1, 2, 3, 4, ...., 19, 20} = 20*

***Multiples of 4:** 4, 8, 12, 16, 20 (5 tickets)*
***Multiples of 5:** 5, 10, 15, 20 (4 tickets)*

*Notice that ticket number 20 is a multiple of both 4 and 5, so we have counted it twice. Therefore, we need to subtract one from the total count.*

*Total number of tickets with numbers that are multiples of 4 or 5: 5 + 4 - 1 = 8*
*The total number of tickets is 20, so the probability of drawing a ticket with a number that is a multiple of 4 or 5 is:*

*P = 8/20 = 2/5 = 0.4*

*Therefore, the probability that the ticket drawn has a number that is a multiple of 4 or 5 is 0.4 or 40%.*

students do not like anything above. If randomly one student is chosen, find the probability that.

18) The student likes mutton.

19) He likes either chicken or mutton

20) He likes neither fish nor mutton.

*Solution( 18 - 20):*

*The total number of favorable outcomes = 300 (Since there are 300 students altogether).*

*The number of times a chicken liker is chosen = 95 (Since 95 students like chicken).*
*The number of times a fish liker is chosen = 120.*
*The number of times a mutton liker is chosen = 80.*
*The number of times a student is chosen who likes none of these = 5.*

**Question 18**: Find the probability that the student likes mutton.

A) 3/10
B) 4/15
C) 1/10
D) 1/15
E) None of these

**Answer: B**
**Solution:**

*Therefore, the probability of getting a student who likes mutton*

*= 80/300*
*= 4/15*

**Question 19**: What is the probability that the student likes either chicken or mutton?

A) 7/12

D) 1/12

E) None of these

**Answer: A**

**Solution:**

> *The probability of getting a student who likes either chicken or mutton*
> *= (95+80)/300*
> *= 175/300*
> *= 7/12*

**Question 20**: Find the probability that the student likes neither fish nor mutton.

A) 1/2

B) 1/5

C) 1/3

D) 1/4

E) 1/6

**Answer: C**

**Solution:**

> *The probability of getting a student who likes neither fish nor mutton*
> *= (300−120−80)/300*
> *= 100/300*
> *= 1/3*

**Direction ( 21-23):**

**A box contains 90 number plates numbered 1 to 90. If one number plate is drawn at random from the box then find out the probability that**

21) The number is a two-digit number

22) The number is a perfect square

A) 1/9

B) 1/10

C) 9/10

D) 7/10

E) None of these

**Answer: C**

**Solution :**

*Total possible outcomes = 90 (Since the number plates are numbered from 1 to 90).*

*Number of favorable outcomes
= 90 - 9 = 81 ( here, except 1 to 9, other numbers are two-digit number.)*

*Thus required probability
= Number of Favourable Outcomes /Total Number of Possible Outcomes
= 81/90
= 9/10.*

**Question 22**: What is the probability that the number is a perfect square?

A) 1/9

B) 1/10

C) 9/10

D) 1/7

E) None of these

**Answer: B**

**Solution:**

*Total possible outcomes = 90.
Number of favorable outcomes = 9      [here 1, 4, 9, 16, 25, 36, 49, 64, and 81 are the perfect squares]
Thus the required probability = 9/90   =1/10*

A) 1/5

B) 1/6

C) 1/10

D) 1/8

E) 9/10

**Answer: A**

**Solution:**

*Total possible outcomes = 90.*
*Number of favourable outcomes = 18      (here, 5 × 1, 5 × 2, 5 × 3, ….,*
*5 × 18 are multiple of 5).*
*Thus, the required probability= 18/90 =1/5*

## Practice Questions on Probability

1. A bag contains 4 red balls and 6 blue balls. If two balls are drawn at random, what is the probability that both balls are red?

2. In a class of 50 students, 30 play cricket, 20 play football, and 10 play both cricket and football. What is the probability that a randomly selected student plays either cricket or football?

3. A fair die is rolled twice. What is the probability of getting a sum of 7?

4. In a deck of 52 cards, what is the probability of drawing a face card (Jack, Queen, or King) or an Ace?

5. The probability of an event A is 0.6 and the probability of event B is 0.3. If the events are mutually exclusive, what is the probability of either A or B occurring?

6. A box contains 5 white marbles, 3 black marbles, and 2 red marbles. If two marbles are drawn without replacement, what is the probability that the first is white and the second is black?

7. In a group of 100 people, 60 like coffee, 40 like tea, and 20 like both.

8. A fair coin is tossed 3 times. What is the probability of getting at least two heads?

9. In a family with two children, what is the probability that both children are girls, given that at least one of the children is a girl?

10. A bag contains 3 red balls, 4 green balls, and 5 blue balls. Two balls are drawn at random. What is the probability that they are of different colors?

*Answer Key*

*1. 2/15*
*2. 4/5*
*3. 1/6*
*4. 4/13*
*5. 0.9*
*6. 1/6*
*7. 0.2*
*8. 1/2*
*9. 1/3*
*10. 47/66*

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