



INDIAN SCHOOL AL WADI AL KABIR
DEPARTMENT OF MATHEMATICS 2024 – 2025
Probability Work Sheet – Class XI

1	Without repetition of the numbers, four-digit numbers are formed with the numbers 0, 2, 3, 5. The probability of such a number divisible by 5 is			
	a) $\frac{1}{5}$	b) $\frac{4}{5}$	c) $\frac{5}{9}$	d) $\frac{1}{30}$
2	Three-digit numbers are formed using the digits 0, 2, 4, 6, 8. A number is chosen at random out of these numbers. What is the probability that this number has the same digits?			
	a) $\frac{1}{16}$	b) $\frac{16}{25}$	c) $\frac{1}{65}$	d) $\frac{1}{25}$
3	Three unbiased coins are tossed. If the probability of getting at least 2 tails is p, Then the value of 8p			
	a) 0	b) 1	c) 3	d) 4
4	Four unbiased coins are tossed. If the probability of getting odd number of tails is p, then the value of 16p			
	a) 1	b) 2	c) 4	d) 8
5	From 4 red balls, 2 white balls and 4 black balls, four balls are selected. The probability of getting 2 red balls is p, then the value of 7p			
	a) 1	b) 2	c) 3	d) 4
6	If A and B are mutually exclusive events, then			
	a) $P(A) \leq P(B^c)$	b) $P(A) \geq P(B^c)$	c) $P(A) < P(B^c)$	d) None of these
7	The probability that at least one of the events A and B occur simultaneously with probability 0.2, then $P(A) + P(B)$ is			
	a) 0.4	b) 0.8	c) 1.2	d) 1.6
8	Find the probability that in a random arrangement of the letters of the word UNIVERSITY two I's come together.			
9	An urn contains 5 blue and an unknown number x of red balls. Two balls are drawn at random. If the probability of both of them being blue is $\frac{5}{14}$, find x.			
10	Out of 8 points in a plane 5 are collinear. Find the probability that 3 points selected at random form a triangle.			
11	Find the probability of at most two tails or at least two heads in a toss of three coins			

12	If $\frac{1+3p}{3}$, $\frac{1-p}{4}$ and $\frac{1-2p}{2}$ are the probability of three mutually exclusive events. Then find the set of all values of p.
13	If three distinct numbers are chosen randomly from the first 100 natural numbers, then find the probability that all three of them are divisible by both 2 and 3.
14	$S = \{1, 2, 3, \dots, 30\}$, $A = \{x : x \text{ is multiple of } 7\}$, $B = \{x : x \text{ is multiple of } 5\}$, $C = \{x : x \text{ is a multiple of } 3\}$. If x is a member of S chosen at random find the probability that (i) $x \in A \cup B$ (ii) $x \in B \cap C$ (iii) $x \in A \cap C^c$
15	One number is chosen at random from the number 1 to 100. Find the probability that it is divisible by 4 or 10
16	If A and B are any two events having $P(A \cup B) = \frac{1}{2}$ and $P(A^c) = \frac{2}{3}$ then find $P(A^c \cap B)$
17	Three of the six vertices of a regular hexagon are chosen at random. What is probability that the triangle with these vertices is equilateral?
18	A typical PIN (Personal identification number) is a sequence of any four symbols chosen from the 26 letters in the alphabet and ten digits. If all PINs are equally likely, what is the probability that a randomly chosen PIN contains a repeated symbol?
19	An urn contains 9 red, 7 white and 4 black balls. If two balls are drawn at random. Find the probability that the balls are of same colour.
20	A girl calculates that the probability of her winning the first prize in a lottery is 0.02. If 6000 tickets were sold, how many tickets has she bought?
21	The probability that a new railway bridge will get an award for its design is 0.48, the probability that it will get an award for the efficient use of materials is 0.36, and that it will get both awards is 0.2. What is the probability, that (i) it will get at least one of the two awards (ii) it will get only one of the awards.
22	Two dice are thrown at the same time and the product of numbers appearing on them is noted. Find the probability that the product is less than 9?
23	All the face cards are removed from a deck of 52 playing cards. The remaining cards are well shuffled and then one card is drawn at random. Giving ace a value 1 and similar value for other cards. Find the probability of getting a card with value less than 7.
24	If A, B and C are three mutually exclusive and exhaustive events of an experiment such that $3P(A) = 2P(B) = P(C)$, then find the value of $P(A)$.



INDIAN SCHOOL AL WADI AL KABIR
DEPARTMENT OF MATHEMATICS 2023 – 2024
Work Sheet – Class XI - Probability (Answer Key)

1	c) $\frac{5}{9}$	2.	d) $\frac{1}{25}$	3.	d) 4	4	d) 8
5	c) 3	6	a) $P(A) \leq P(B^c)$	7.	c) 1.2		
8	$\frac{1}{5} \left[\text{Hint: } \frac{9!}{10!/2!} = \frac{9!}{5 \times 9!} \right]$	9.	$3 \left[\text{Hint: } \frac{{}^5C_2}{{}^{5+x}C_2} = \frac{5}{14} \right]$				
10	$\frac{23}{28} \left[\text{Hint: } \frac{{}^8C_3 - {}^5C_3}{{}^8C_3} \right]$	11.	$\frac{7}{8} \left[\text{Hint: } P(A \cup B) \right]$				
12	$\frac{-1}{3} \leq p \leq \frac{-1}{3} \left[\text{Hint: } 0 \leq P(A) \leq 1, 0 \leq P(B) \leq 1 \text{ Mutually Exclusive} \right.$ $\left. 0 \leq P(C) \leq 1 \quad 0 \leq P(A) + P(B) + P(C) \leq 1 \right]$						
13	$\frac{4}{1155} \left[\text{Hint: } \frac{{}^{16}C_3}{{}^{100}C_3} \right]$						
14	(i) $\frac{1}{3} \left[\frac{n(A \cup B)}{n(s)} = \frac{n(A) + n(B) - n(A \cap B)}{n(s)} \right]$ (ii) $\frac{1}{15} \left[\text{Hint: } B \cap C = \{15, 30\} \right]$	(iii) $\frac{1}{10} \left[\text{Hint: } A \cap \bar{C} = \{7, 14, 28\} \right]$					
15	$\frac{3}{10} \left[\text{Hint: } P(A \cup B) = P(A) + P(B) - P(A \cap B) = \frac{25}{100} + \frac{10}{100} - \frac{5}{100} \right]$						
16	$\frac{1}{6} \left[\text{Hint: } P(\bar{A} \cap B) = P(A \cap B) - P(A) \right]$						
17	$\frac{1}{10} \left[\text{Hint: } \frac{2}{{}^6C_3} \right]$	18.	$\frac{1231}{7776} \left[\text{Hint: } 1 - \frac{36 \times 35 \times 34 \times 33}{(36)^4} \right]$				
19	$\frac{63}{190} \left[\text{Hint: } \frac{{}^9C_2}{{}^{20}C_2} + \frac{{}^7C_2}{{}^{20}C_2} + \frac{{}^4C_2}{{}^{20}C_2} \right]$	20	125				
21	(i) 0.64 [Hint: $P(D \cup M)$] (ii) 0.44 $\left[\text{Hint: } \begin{aligned} &= P(D \cap \bar{M}) \cup P(\bar{D} \cap M) \\ &= P(D \cup M) - P(D \cap M) \end{aligned} \right]$	22.	$\frac{5}{12}$				
23	$\frac{3}{5} \left[\text{Hint: } = \frac{4 \times {}^6C_1}{{}^{40}C_1} \right]$	24	$\frac{2}{11} \left[\text{Hint: } = \text{Let } P(C) = x \right.$ $\left. \frac{x}{3} + \frac{x}{2} + x = 1 \right]$				