

**MAHARASHTRA BOARD CLASS 10
MATHS PART 1 QUESTIONS**

School Assessment - School Sample Paper - Standard 10th – Mathematics

Mathematics - Part-1

Q.1 Attempt any FIVE of the following sub-questions: [5]

- (i) Find the first negative term of an AP series 55, 50, 45, 40,?
- (ii) Does the solution exist for the systems of linear equations are $x + 3y = 6$ and $3x + 9y = 24$?
- (iii) Find the number of terms in the AP series 20, 24, 28, 32,, 360.
- (iv) Find the value of k from the system of equations $x + 5y = 9$ and $3x + ky = 8$ and find whether the system has no solution.
- (v) Find $\frac{1}{\alpha} + \frac{1}{\beta}$, if α and β are the roots of the equation $x^2 - 4x + 9 = 0$?
- (vi) Find the quadratic equation if one root is $9 - 4\sqrt{5}$.

Q.2 Attempt any FOUR of the following sub questions: [8]

- (i) Find the common difference of an AP, if 7th and 13th term of the AP are 35 and 77?
- (ii) If the systems of linear equations are $x + 4y = 7$ and $5ax + (a + b)y = 35$ has infinite many solutions, then find the value of a.
- (iii) If the roots of the quadratic equation are $\frac{7}{5}$ and $-\frac{5}{3}$, then, find the quadratic equation.
- (iv) The average monthly salary of 24 members of a group is Rs. 20000. If one more member whose monthly salary is Rs. 25000 has joined the group, then what will be the average salary of the group?
- (v) If a number is selected at random from the number 2, 3, 4, 5, 6, 7,, 50, then find the probability of the prime number.
- (vi) Find the mean, if the median and mode of frequency distribution are 24 and 16 respectively.

Q.3 Attempt any THREE of the following sub questions: [9]

- (i) The present age of Mohan's father is five times than Mohan. Five years ago, the difference between their ages is 24. What will be the present age of Mohan and Mohan's father?
- (ii) If the roots of the quadratic equation $(p - q)x^2 + (q - r)x + (r - p) = 0$ are equal, then show that $2p = q + r$.
- (iii) A and B invest Rs. 2000 and Rs. 1500 respectively in a business. If after one year there is a loss Rs. 700, how much will B bear? (Loss or profit is in proportion to their investments)
- (iv) There are 100 students in a class of whom 60 are boys and 40 are girls. From these students one is chosen at random. What is the probability that the chosen student is a (a) boy (b) girl.

(v) Find mode of the following data:

Class	0 – 4	4 – 8	8 – 12	12 – 16	16 – 20	20 – 24
Frequency	8	21	15	34	26	12

Q.4 Attempt any TWO of the following sub questions: [8]

- (i) Find the value of x in the quadratic equation $3^{x+1} + 3^{2-x} = 28$.
- (ii) If two dice are thrown simultaneously. Find the probability of getting:
 (a) The sum of two numbers is 8
 (b) The sum of two numbers is not 8.
- (iii) Find the median of the following data:

Class	0 – 4	4 – 8	8 – 12	12 – 16	16 – 20	20 – 24
Frequency	10	12	14	14	22	11

Q.5 Attempt any TWO of the following sub questions: [10]

- (i) If 9th term of an AP is 49 and the 17th term of the AP is 105. Then, find the sum of first 12 terms of the AP.
- (ii) P and Q can do a piece of work in 12 days, Q and R can do a piece of work in 18 days and R and P can do a piece of work in 15 days. In how many days, R alone can do the same work?
- (iii) Find mean, mode and median for the following data:

Class	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	Total
Frequency	8	16	10	5	11	50