

# AP Board Intermediate 2nd Year Maths Important Questions

1. Find all the roots of the equation  $x^{11} - x^7 + x^4 - 1 = 0$ .
2. Solve:  $x^4 - 10x^3 + 26x^2 - 10x + 1 = 0$ .
3. A problem in calculus is given to two students A and B whose chances of solving it are  $\frac{1}{3}$  and  $\frac{1}{4}$  respectively. Find the probability of the problem being solved if both of them try independently.
4. Two persons A and B are rolling a die on the condition that the person who gets 3 will win the game. If A starts the game, then find the probabilities of A and B respectively to win the game.
5. Find the number of ways of selecting a cricket team of 11 players from 7 batsmen and 6 bowlers such that there will be at least 5 bowlers in the team.
6. If the letters of the word MASTER are permuted in all possible ways and the words thus formed are arranged in the dictionary order, then find the rank of the word "REMAST".
7. Find the number of ways of arranging the letters of the word "INTERMEDIATE"
8. The variance of 20 observations is 5. If each observation is multiplied by 2, then find the new variance of the resulting observations.
9. A poisson variable satisfies  $P(x = 1) = P(x = 2)$  Find  $P(x = 5)$
10. Find the value of  $(1+i)^{16}$
11. Find the length of major axis, minor axis, latus rectum, eccentricity of the ellipse  $9x^2 + 16y^2 = 144$ .
12. Find the equation of the tangents to the hyperbola  $3x^2 - 4y^2 = 12$  which are (i) Parallel to (ii) Perpendicular to the line  $y = x - 7$ .
13. Show that the tangent at  $(-1, 2)$  of circle  $x^2 + y^2 - 4x - 8y + 7 = 0$  touches the circle  $x^2 + y^2 + 4x + 6y = 0$ . Also find its point of contact.
14. Find the equation of the parabola whose focus is S  $(1, -7)$  and vertex is A  $(1, -2)$ .
15. The probabilities of three events A, B, C are such that  $P(A) = 0.3$ ,  $P(B) = 0.4$ ,  $P(C) = 0.8$ ,

$P(A \cap B) = 0.08$ ,  $P(A \cap C) = 0.28$ ,  $P(A \cap B \cap C) = 0.09$ , and  $P(A \cup B \cup C) \geq 0.75$ , show that  $P(B \cap C)$  lies in the interval  $[0.23, 0.48]$ .

