1.What is the sum of the angles in a triangle? [Easy]

2. Define the Pythagorean theorem. [Easy]

3. Write the formula for the area of a circle. [Easy]

4. Convert 0.75 into a fraction. [Easy]

5. What is the square root of 144? [Easy]

6. State the value of π (pi) up to 3 decimal places. [Easy]

7. List the first five prime numbers. [Easy]

8. What is 15% of 200? [Easy]

9. Define an irrational number with an example. [Medium]

10. What is the difference between a rational and an irrational number? [Medium]

11.Explain why 0 is neither a prime nor a composite number. [Easy]

12.Why is the sum of two even numbers always even? [Easy]

13.Describe the difference between mean, median, and mode. [Medium]

14.Explain the distributive property of multiplication over addition. [Medium]

15.Convert 1/8 into a decimal and explain the process. [Medium]

16.Why do parallel lines never meet? [Easy]

17.If a function is increasing, what does it mean? [Medium]

18.Explain the difference between a function and a relation. [Hard]

19.Describe the significance of the Pythagorean theorem in real life. [Hard]

20.Why do we use logarithms in mathematical calculations? [Hard]

21. Solve for x: 2x + 3 = 9. [Easy]

22.Find the area of a triangle with base 8 cm and height 5 cm. [Easy]

23.If a car travels 60 km in 1.5 hours, what is its speed? [Easy]

24.Solve: 5! (5 factorial). [Medium]

25.A shop offers a 20% discount on a ₹500 item. Find the final price. [Medium]

26.Find the equation of a line passing through (2,3) with slope 4. [Medium]

27.Solve for x in 3x² - 5x + 2 = 0 using the quadratic formula. [Medium]

28.Find the probability of drawing a red card from a deck of 52 cards. [Hard]

29.A train covers 240 km in 4 hours. Find its average speed. [Easy]

30.Find the value of sin(30°) + cos(60°). [Easy]

31.Compare and contrast arithmetic and geometric sequences. [Medium]

32.How does changing the base of a logarithm affect its value? [Medium]

33.If f(x) = x² + 3x - 4, find f(2) and f(-1). [Medium]

34.Find the range of the function f(x) = 2x + 3. [Hard]

35.Analyze why the determinant of a singular matrix is always zero. [Hard]

36.Why is the division by zero undefined? [Medium]

37.If two lines have slopes 2 and -1/2, are they perpendicular? [Hard]

38.Find the inverse of the function f(x) = (3x - 2)/4. [Hard]

39.Explain the effect of increasing the sample size on statistical significance. [Hard]

40.Prove that the sum of the first n odd numbers is n². [Hard]

41.Is the function f(x) = x³ - 3x² + 2x increasing or decreasing? [Hard]

42.Determine whether the function f(x) = sin(x) is one-to-one. [Hard]

43.Evaluate the convergence of the series ∑ 1/n². [Hard]

44.Justify why the square root of a negative number is imaginary. [Hard]

45.Compare the growth of exponential and logarithmic functions. [Hard]

46.Determine whether the matrix A = [[2,3],[1,4]] is invertible. [Hard]

47.Evaluate the integral ∫ (2x + 3) dx. [Hard]

48.Find the derivative of x⁵ + 2x² - 3x + 7. [Medium]

49.Differentiate y = e^x cos(x). [Hard]

50.Find the critical points of the function f(x) = x³ - 6x² + 9x + 5. [Hard]

51.Design a real-life scenario where the Pythagorean theorem is used. [Medium]

52.Construct a word problem that involves solving a quadratic equation. [Medium]

53.Develop a formula for the nth term of the Fibonacci sequence. [Hard]

54.Write an equation representing a parabola with vertex (3, -2). [Medium]

55.Create a proof to show that an even number is always divisible by 2. [Medium]

56.Develop a real-life example where probability plays a key role. [Medium]

57.Propose an alternative method to solve simultaneous equations. [Hard]

58.Devise a new rule for matrix multiplication and justify it. [Hard]

59.Formulate an equation to predict population growth over time. [Hard]

60.Design a question where the answer is an irrational number. [Hard]