

# ALVINO ACADEMICS EXPERT

## REVISION SHEET CH 4 X

### Class 10 - Mathematics

Time Allowed: 1 hour

Maximum Marks: 63

1. If the equation  $kx^2 - 2kx + 6 = 0$  has equal roots, then find the value of k. [2]
2. Solve for x by factorization:  $x + \frac{1}{x} = 11\frac{1}{11}$  [2]
3. Solve the equation  $4\sqrt{3}x^2 + 5x - 2\sqrt{3} = 0$  for x. [2]
4. A car covers a distance of 2592 km with a uniform speed. The number of hours taken for the journey is one half the number representing the speed in km/ hour. Find the time taken to cover the distances. [2]
5. Solve for x:  $6x^2 - 2x + \frac{1}{6} = 0$  [2]
6. Solve:  $3x^2 - 2\sqrt{6}x + 2 = 0$  [2]
7. The sum of two numbers is 9 and the sum of their reciprocals is  $\frac{1}{2}$ . Find the numbers. [2]
8. If the roots of the equation  $(b - c)x^2 + (c - a)x + (a - b) = 0$  are equal, then prove that  $2b = a + c$ . [3]
9. A rectangular field is 16 m long and 10 m wide. There is a path of uniform width all around it, having an area of  $120 \text{ m}^2$ . Find the width of the path. [3]
10. The sum of a natural number and its positive square root is 132. Find the number. [3]
11. The numerator of a fraction is one less than its denominator. If three is added to each of the numerator and denominator, the fraction is increased by  $\frac{3}{28}$ . Find the fraction. [3]
12. Solve:  $\frac{2}{(x+1)} + \frac{3}{2(x-2)} = \frac{23}{5x}, x \neq 0, -1, 2$ . [3]
13. The speed of a boat in still water is 8 km/hr. It can go 15 km upstream and 22 km downstream in 5 hours. Find the speed of the stream. [3]
14. If two pipes function simultaneously, a reservoir will be filled in 12 hours. One pipe fills the reservoir 10 hours faster than the other. How many hours will the second pipe take to fill the reservoir? [3]
15. A plane left 30 minutes later than the schedule time and in order to reach its destination 1500 km away in time it has to increase its speed by 250 km/hr from its usual speed. Find its usual speed. [3]
16. The sum of the ages of a father and his son is 45 years. Five years ago, the product of their ages (in years) was 124. Determine their present age. [5]
17. At t minutes past 2 p.m, the time needed by the minute hand of a clock to show 3 p.m. was found to be 3 minutes less than  $\frac{t^2}{4}$  minutes. Find t. [5]
18. The length of the hypotenuse of a right triangle exceeds the length of its base by 2 cm and exceeds twice the length of altitude by 1 cm. Find the length of each side of the triangle. [5]
19. The sum of the ages of a father and his son is 45 years. Five years ago, the product of their ages was four times the father's age at that time. Find their present ages. [5]
20. A person on tour has ₹ 4200 for his expenses. If he extends his tour for 3 days, he has to cut down his daily expenses by ₹ 70. Find the original duration of the tour. [5]