

INTERNATIONAL INDIAN SCHOOL, RIYADH

CLASS: X

SUBJECT: MATHEMATICS

TOPIC: QUADRATIC EQUATIONS

- 1) Solve for x: $4x^2 - 4a^2x + (a^4 - b^4) = 0$ ($a^2 + b^2/2$, $a^2 - b^2/2$)
- 2) find the value of k so that the quadratic equation has equal roots:
 $(k + 3)x^2 + 2(k + 3)x + 4 = 0$ (1, -3)
- 3) For what value of p the equation $(1 + p)x^2 + 2(1 + 2p)x + (1 + p) = 0$ has coincident roots (0, -2/3)
- 4) Find the roots of the following quadratic equation by the method of completing the Square.
 $a^2x^2 - 3abx + 2b^2 = 0$ (2b/a, b/a)
- 5) Solve the following quadratic equations by factorization method:
a) $3x^2 - 2\sqrt{6}x + 2 = 0$ ($\sqrt{2}/3, \sqrt{2}/3$)
b) $x^2 - 5\sqrt{5}x + 30 = 0$ ($3\sqrt{5}, 2\sqrt{5}$)
- 6) Solve for x: $\frac{1}{a + b + x} = \frac{1}{a} + \frac{1}{b} + \frac{1}{x}$, $a + b \neq 0$ (-a, -b)
- 7) Solve for x: $\frac{x}{x+1} + \frac{x+1}{x} = \frac{34}{15}$ (3/2, -5/2)
- 8) Solve for x: $\frac{1}{x-3} - \frac{1}{x+5} = \frac{1}{6}$ (7, -9)
- 9) Solve for x: $2\left[\frac{2x-1}{x+3}\right] - 3\left[\frac{x+3}{2x-1}\right] = 5$ (-10, -1/5)
- 10) The sum of the squares of two consecutive odd numbers is 394. Find the numbers. (13, 15)
- 11) The sum of the squares of two consecutive multiples of 7 is 637. Find the multiples
- 12) The product of 3 consecutive even numbers is equal to 20 times their sum. Find the numbers (6, 8, and 10)
- 13) The sum of the areas of two squares is 640 m^2 . If the difference in their perimeter is 64m. Find the sides of the two squares (8m, 24m)
- 14) The difference of two numbers is 4. If the difference of their reciprocals is $4/21$, find the numbers (3, 7)
- 15) The perimeter of a right angled triangle is 70 units and its hypotenuse is 29 units. Find the lengths of the other sides (20, 21)
- 16) The length of the sides forming a right angled Δ is $5x \text{ cm}$ and $(3x - 1) \text{ cm}$. Area of the triangle is 60 cm^2 . Find the hypotenuse (17cm)
- 17) A natural number, when increased by 12, becomes equal to 160 times its reciprocal. Find the number (8)
- 18) A takes 6 days less than the time taken by B to finish a piece of work. If both A and B together Can finish it in 4 days; find the time taken by B to finish the work (12 days)
- 19) A two digit number is such that the product of its digits is 18. When 63 is subtracted from the number, the digits interchange their places. Find the number (92)
- 20) The speed of a boat in still water is 15 km/hr. It can go 30km upstream and return downstream to the original point in 4hrs 30min. Find out the speed of the stream (5km/hr)
- 21) A train travels 180km at a uniform speed. If the speed had been 9 km/ hr more, it would have taken 1 hour less for the same Journey. Find the speed of the train. (36km/hr)
- 22) A plane left 30 minutes late than its scheduled time and in order to reach the destination 1500km away in time it had to increase the speed by 250 km/h from the usual speed. Find its usual speed (750 km / hr)
- 23) The age of father is equal to the square of the age of his son. The sum of the age of father and five times the age of the son is 66 years. Find their ages (36y, 6y)
- 24) Two water taps together can fill a tank in 6 hrs. The tap of larger diameter takes 9 hrs less than the smaller one to fill the Tank separately. Find the time in which each tap can separately fill the tank (18hrs, 9 hrs)
- 25) Rs 1200 were distributed equally among certain number of students. Had there been 8 more students, each would have Received Rs 5 less. Find the number of students. (40)