



**INDIAN SCHOOL DARSAIT**  
**DEPARTMENT OF MATHEMATICS**  
**WORKSHEET # 7**



Subject : MATHEMATICS      Topic : QUADRATIC EQUATIONS      Date of Worksheet :01/06/2017

Resource Person: Mrs.Indu .P

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Name of the Student \_\_\_\_\_ Class & Division: \_\_\_\_\_ Roll Number : \_\_\_\_

| S.No.  | Section A-[Basic skills]  |       |
|--------|---|-------|
| 1.     | Solve : $(x+4)7 = -2(x + 1)$  |       |
| 2.     | Solve : $x + 2x^2 + 4x + 8 - x^2 + 20 - 4$  |       |
| 3.     | Evaluate $\sqrt{625} + \sqrt{576}$  |       |
| 4.     | Solve $7x = -49$  |       |
| 5.     | Solve $3(x - 4) = 3 + 2(x + 1)$   |       |
| Sl.NO. | Section B -[Chapter based questions]  | Marks |
| 1.     | Find the value of p to have real roots in each of the following<br>a) $5px^2 - 8x + 2$ b) $4x^2 + 8x - p = 0$   | 2     |
| 2.     | Find the value of p for which the roots of the following equations are real and unequal<br>a) $9x^2 - 24x + p = 0$ b) $x^2 - 2(p+1)x + p^2 = 0$   | 2     |
| 3.     | Solve for x : $4 - 3x^2 + 5x - 2 - 3 = 0$   | 4     |
| 4.     | If one root of the equation $x^2 - 5x + k = 0$ is equal to 4 , find the value of k and the other root   | 4     |
| 5.     | The sum of two numbers is 15. If the sum of their reciprocals is $\frac{3}{10}$ , find the numbers.   | 3     |
| 6.     | Divide 29 into two parts so that the sum of the squares of the parts is 425.  | 3     |
| 7.     | A train travels a distance of 480 km at a uniform speed. If the speed had been 8km/h less, then it would have taken 3 hours more to cover the same distance. We need to find the speed of the train.                          |       |
| 8.     | A two digit number is such that the product of its digit is 15. If 18 is added to the number, the digits interchange their places. Find the number.   | 4     |
| 9.     | A speed of a boat in still water is 11km/h. It can go 12km upstream and return downstream to the original point in 2hours 45minutes. Find the speed of the stream.  | 4     |
| 10.    | In a class test , the sum of Rohan's marks in Maths and English is 30.Had she got 2 marks more in Mathematics and 3 marks less in English , the product of his marks would have been 210. Find his marks in the two subjects. | 4     |
| 11.    | Solve for x : $9x^2 - 6ax + (a^2 - b^2) = 0$  | 4     |
| 12.    | Solve for x : $\frac{x-1}{x-2} + \frac{x-3}{x-4} = 3$ (x 2,4)   | 4     |



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**SECTION C - [HOT QUESTIONS]**

|     |  |   |
|-----|--|---|
| 1.  | Write the condition to be satisfied for which equations $ax^2 + 2bx + c = 0$ and $bx^2 - 2\sqrt{ac}x + b = 0$ have equal roots.  | 2 |
| 2.  | Solve for $x$ : $a^2b^2x^2 + b^2x - a^2x - 1 = 0$  | 4 |
| 3.  | Solve for $x$ : $x^2 - 2(a^2 + b^2)x + (a^2 - b^2)^2 = 0$  | 4 |
| 4.  | Find the roots of the equation $5x^2 - 6x - 2 = 0$ by the method of completing the square.   | 4 |
| 5.  | If the roots of the equation $(a - b)x^2 + (b - c)x + (c - a) = 0$ are equal, prove that $2a = b + c$ .  | 3 |
| 6.  | If the equation $(1 + m^2)x^2 + 2mcx + (c^2 - a^2) = 0$ has equal roots, prove that $c^2 = a^2(1 + m^2)$   | 4 |
| 7.  | O Girl ! Out of a group of swans, $\frac{7}{2}$ times the square root of the number are playing on the shore of a tank. The two remaining ones are playing, with amorous fight, in the water. What is the total no. of swans ?   | 4 |
| 8.  | Three consecutive positive integers are such that the sum of the square of the first and the product of the other two is 46, find the integers.  | 4 |
| 9.  | A plane left 30 minutes later than the schedule time and in order to reach the destination 1500km away in time it has to increase its speed by 250 km/hr from its usual speed. Find its usual speed.   | 4 |
| 10. | The angry Arjun carried some arrows for fighting with Bheeshm. With half the arrows, he cut down the arrows thrown by Bheeshm on him and with six other arrows he killed the rath driver of Bheeshm. With one arrow each he knocked down respectively the rath, flag and the bow of Bheeshm. Finally with one more than four times the square root of arrows he laid Bheeshm unconscious on an arrow bed. Find the total number of arrows Arjun had. | 4 |
| 11. | A shopkeeper buys a number of books for Rs. 80. If he had bought 4 more books for the same amount, each book would have cost Rs. 1 less. How many books did he buy?  | 4 |
| 12. | Solve $2\left(\frac{2x-1}{x+3}\right) - 3\left(\frac{x+3}{2x-1}\right) = 5$ , $x \neq -3, \frac{1}{2}$   | 4 |
| 13. | Solve $\frac{1}{a+b+x} = \frac{1}{a} + \frac{1}{b} + \frac{1}{x}$ [ $x \neq 0, x \neq -(a+b)$ ]  | 4 |
| 14. | Solve $5^{x+1} + 5^{2-x} = 5^3 + 1$  | 4 |
| 15. | Prove that both the roots of the quadratic equation $(x - a)(x - b) + (x - b)(x - c) + (x - c)(x - a) = 0$ are real but they are equal only when $a = b = c$ .   | 4 |