# ST. LAWRENCE HIGH SCHOOL

**A Jesuit Christian minority Institution**

**Subject: Mathematics** **Class-X** **Date:6/02/2021**

**Topic: Quadratic equation** **Worksheet-6** **Full marks -15**

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1. **Choose the correct alternative. 1x15=15**

**a)Write nature of the roots of $2x^2+7x+3=0$**

**i)roots are real and unequal ii) roots are not real iii) roots are real and equal iv) none of the above**

**b) Write nature of the roots of $3x^2-2\sqrt{6}\,x+2=0$**

**i)roots are real and unequal ii) roots are not real iii) roots are real and equal iv) none of the above**

**c) Write nature of the roots of $\frac{2}{5}x^2 - \frac{2}{3}x + 1 = 0$**

**i)roots are real and unequal ii) roots are not real iii) roots are real and equal iv) none of the above**

**d)Find the value of k for which the quadratic equation $x^2-2(5+2k)x+3(7+10k)=0$**

**i) k= -1/2 or -2 ii) k= 2 or ½ iii) k= 1 or ½ iv) none of these**

**e)For what value of m the two roots of the quadratic equation $4x^2+4(3m-1)x+(m+7)=0$ are reciprocal to each other.**

**i) m= -1 ii) m=-2 iii) m= -3 iv) none of these**

**f)If two roots of the quadratic equation $5x^2+2x-3=0$ are α and β, then determine the value of $\alpha^2+\beta^2$**

**i) 25/34 ii) 34/25 iii) -34/25 iv) none of these**

**g)If two roots of the quadratic equation 5x2+2x-3=0 are α and β, then determine the value of $\frac{\alpha^2}{\beta}+\frac{\beta^2}{\alpha}$**

**i) 98/75 ii) 75/98 iii) -25/98 iv) -98/75**

**h)If two roots of the quadratic equation 5x2+2x-3=0 are α and β, then determine the value of $\alpha^3+\beta^3$**

**i) 98/125 ii) -98/125 iii) 98/75 iv) 125/98**

**i) A superfast train runs having speed 15 km/hr more than that of an express train leaving same station the superfast train reached at a**

**station of 180 km distance 1 hr before the express train. Find out speed of the superfast train.**

**i) 45 km/hr ii) 90 km/hr iii) 60 km/hr iv) none of these**

**j) The speed of a boat in still water is 8 km/hr. If the boat can go 15 km down stream and 22 km upstream in 5 hours, then find out the speed of the stream.**

**i) 1.6 km/hr ii) 1.5 km/hr iii) 2 km/hr iv) 2.6 km/hr**

**k)If two roots of the equation $ax^2 + bx + c = 0$ be equal then**

**i) $c = -b/2a$ ii) $c = b/2a$ iii) $c = b^2/4a$ iv) none of these**

**l) There is a squared park in our locality. The area of a rectangular park is 78 sq m less than the twice of the area of that squared park. Rectangular park's length is 5 m more than the length of the side of the square park and the breadth is 3 m less than the length of the square park. Find length of the squared park.**

**i) 5 m ii) 7 m iii) 10 m iv) 9 m**

**m) If the roots of $px^2 + qx + 2 = 0$ are reciprocal of each other, then**

**i) p=0 ii) p= 2 iii) p= 1 iv) p=-2**

**n)Find x: $\frac{1}{a+b+x} = \frac{1}{a} + \frac{1}{b} + \frac{1}{x}$, $a+b \neq 0$**

**i) -a, -b ii) a, b iii) -a, b iv) a, -b**

**o) The roots of the equation $(b-c)x^2 + (c-a)x + (a-b) = 0$ are equal then**

**i) 2a = b+c ii) 2c= a+b iii) b= a+c iv) 2b= a+c**

**Aparajita Mondal**