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**CHINMAYA VIDYALAYA / B S CITY**

**(CBSE NEW GENERATION SCHOOL)**

STD-X SUBJECT-MATHS

## ASSIGNMENT QUADRITIC EQUATION

1.Solve the following quadratic equations by factorization method :

a) $\frac{4}{x}-3=\frac{5}{2x+3}, x\neq 0,-\frac{3}{2}$ b) $\frac{2x}{x-3}+\frac{1}{2x+3}+\frac{3x+9}{(x-3)(2x+3)}=0, x\neq 3,-\frac{3}{2}$

2. Solve the following quadratic equations by factorization method

a) $9x^2-9(a+b)x+(2a^2+5ab+2b^2)=0$ b) $4x^2-4a^2x+a^4-b^4=0$

3. Find the roots of the following equations

a) $4x^2+4bx-\left(a^2-b^2\right)=0$ b) $a^2x^2-3abx+2b^2=0$

4. Using quadratic formula solve the following quadratic equation.

a) $\frac{16}{x}-1=\frac{15}{x+1}, x\neq 0,-1$ b) $\frac{1}{x-3}-\frac{1}{x+5}=\frac{1}{6}, x\neq 3,-5$

5. Find the values of K for which following equations have real and equal roots.

a) $x^2-2(K+1)x+K^2=0$ b) $x^2+K(2x+K-1)+2=0$

6. Find the values of K for which the given quadratic equations have real roots.

a) $Kx(x-2\sqrt{5})+10=0$ b) $4x^2+kx+3=0$

7.If -5 is a root of the quadratic equation $2x^2+px-15=0$ and the quadratic equation $P(x^2+x)+k=0$ has equal roots, find the value of K.

8.Find the value of p for which the quadratic equation $(p+1)x2-6(p+1)x+3(p+q)=0, p\neq -1$ has equal roots. Hence, find the roots of the equation.

9.If the roots of the equation $\left(a^2+b^2\right)x^2-2(ac+bd)x+(c^2+d^2)=0$ are equal, Prove that $\frac{a}{b}=\frac{c}{d}$.

10. If the equation $\left(1+m^2\right)x^2+2mcx+\left(c^2-a^2\right)=0$ has equal roots, Prove that $c^2=a^2(1+m^2)$.

11. Find two consecutive odd positive integers, Sum of whose squares is 290.

12. The denominator of a fraction is one more than twice the numerator. If the sum of the fraction and its reciprocal is $2\frac{16}{21}$, find the fraction.

13. A two digit number is four times the sum and three times the product of its digits. Find the number.

14. The difference of two natural number is 3 and the difference of their reciprocals is 3/28. Find the numbers.

15. The sum of the squares of two consecutive odd numbers is 394. Find the numbers.

16. Find the two numbers which are positive if the difference of the squares of two positive integers is 180. The square of the smaller number is 8 times the larger.

17. The numerator of a fraction is 3 less than the denominator. If 2 is added to both the numerator and the denominator then the Sum of the new fraction and the original fraction is $\frac{29}{20}$. Find the original fraction.

18. The perimeter of a right triangle is 60 cm. Its hypotenuse is 25 cm. Find the area of the triangle.

19. The hypotenuse of a right triangle is $3\sqrt{10}$ cm. If the smaller leg is tripled and the longer leg doubled, new hypotenuse will be $9\sqrt{5}$ cm. How long are the legs of the triangle ?

20. A girl is twice as old as her sister. Four years hence, the Product of their ages (in years) will be 160. Find their present ages.

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