**ASSIGNMENT (2020-21)**

**CLASS - X SUBJECT – MATHEMATICS**

 **CH- 4 (QUADRATIC EQUATIONS)**

1. Which of the following equations has 2 as a root?

$\left(a\right)$ $x^{2}-4x+5=0$ $\left(b\right)$ $x^{2}+3x-12=0$ $\left(c\right)$ $2x^{2}-7x+6=0$ $\left(d\right)$ $3x^{2}-6x-2=0$

1. Which of the following equations has no real roots?
2. $\left(a\right)$ $x^{2}-4x+3\sqrt{2}=0$ $\left(b\right)$ $x^{2}+4x-3\sqrt{2}=0$ $\left(c\right)$ $x^{2}-4x-3\sqrt{2}=0$ $\left(d\right)$ $3x^{2}+4\sqrt{3}x+4=0$
3. Which of the following is a solution of quadratic equation $ x^{2}-b^{2}=a\left(2x-a\right)$ ?

$\left(a\right)$ $a+b$ $\left(b\right)$ $2b-a$ $\left(c\right)$ $ab$ $\left(d\right)$ $\frac{a}{b}$

1. The value of $p$ for which the quadratic equation $x\left(x-4\right)+p=0$ has real roots:

$\left(a\right)$ $p\leq 4$ $ \left(b\right) p\geq 4 \left(c\right) p=4 \left(d\right)$ None of these

1. Find the roots of the equation $2x^{2}+\frac{5}{3}x-2=0$ by factorization method.
2. find the roots of the quadratic equation $\frac{x-1}{x-2}+\frac{x-3}{x-4}=\frac{10}{3}$
3. If the roots of the equation  (c2 – ab)x2 – 2(a2 – bc)x + b2 – ac = 0 are equal, then prove that either a = 0 or a3 + b3 + c3 = 3abc
4. Find the values of k for which the quadratic equation

(k + 4)x2 + (k + 1)x + 1 = 0 has equal roots. Also find these roots.

1. Solve for $x : $
2. If – 4 is a root of the quadratic equation x2 + px – 4 = 0 and x2 + px + k = 0 has equal roots, find the value of k.
3. The difference of squares of two natural numbers is 45. The square of the smaller number is four times the larger number. Find the numbers.
4. Two taps running together can fill a tank in $3\frac{1}{13}$ hours. If one tap takes 3 hours more than the other to fill the tank, then how much time will each tap take to fill the tank.
5. Using quadratic formula, solve the quadratic equation: $p^{2}x^{2}+\left(p^{2}-q^{2}\right)x-q^{2}=0$
6. Is the following situation possible? If so, determine their present ages.

The sum of ages of two friends is 25 years. Five years ago, the product of their ages was 50 years.