

X - Mathematics Assignment No. 5 - Quadratic Equation

- Q1. If one root of the equation $2x^2 + x + k = 0$ is -2 , Find the value of k and other root.
- Q2. Find the Condition that one root of the equation $ax^2 + bx + c = 0$, $a \neq 0$ is the reciprocal of other.
- Q3. Find the Condition that the two roots of the equation $px^2 + qx + r = 0$, $p \neq 0$ are equal in magnitude but opposite in sign.
- Q4. Find p and q so that the sum and product of roots of equation $px^2 - 2x + q = 0$ are $\frac{2}{3}$ and $-\frac{5}{3}$ respectively.
- Q5. If α and β are the roots of the equation $x^2 - 8x + p = 0$, Find p if $\alpha^2 + \beta^2 = 40$.
- Q6. If α and β are the roots of the equation $x^2 - 5x + k = 0$. Find the value of k such that $2\alpha + 3\beta = 9$.
- Q7. If α, β are the roots of a quadratic equation such that $\alpha + \beta = 24 \wedge \alpha - \beta = 8$ Form the Equation.

ANS:- Q1. $k = -6$,
Other root $= \frac{3}{2}$

Q2. $\frac{c}{a}$

Q3. $q = 0$

Q4. $p = 3, q = -5$

Q5. $p = 12$

Q6. $k = 6$

Q7. $x^2 - 21x + 128 = 0$

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Solve for x by the method of completing the square
 $6x^2 - 5x + 1 = 0$

Solve for x :-

Q9. $\frac{x-1}{x-2} - \frac{x-2}{x-3} = \frac{x-5}{x-6} - \frac{x-6}{x-7}$

Q10. Find the condition that sum of roots, of $mx^2 + nx + p = 0$, $m \neq 0$, $n \neq 0$, is equal to the product of roots

Q11. Check whether the polynomial $2x^2 - 4x + 7 = 0$ can be factorized into two real linear factors

Q12. Find p so that the quadratic polynomial $px^2 + 4x + 1$ can be factorised into two real linear factors

Q13. If $x=2$ and $x=3$ are roots of the equation $3x^2 - 2mx + 2n = 0$, Find the values of m and n

Q14. Find the roots of $2x^2 - 9x + 10 = 0$ if
 (i) $x \in \mathbb{N}$ (ii) $x \in \mathbb{Q}$

Solve the equation

Q15. $10ax^2 - 6x + 15ax - 9 = 0$

<p>ANS: $\left(\frac{1}{2}, \frac{1}{3}\right)$ $x = \frac{9}{2}$ $p + n = 0$</p>	<p>⑪ No $\because b^2 - 4ac < 0$ ⑫ $p \leq 4$ ⑬ $m = \frac{15}{2}$, $n = 9$ ⑭ (i) $x = 2$ (ii) $2, \frac{5}{2}$</p>	<p>⑮ $\left(\frac{3}{5a}, -\frac{3}{2}\right)$</p>
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