WANDOOR GANITHAM SSLC MATHEMATICS STUDY MATERIAL : 2023
POLYNOMIALS

QUESTION -1

Write down the following second degree polynomials as the product of two first degree polynomials .

a) x^2

b) $x^2 - 9$

c) $x^2 - \dfrac{1}{25}$

d) $4x^2 - 9$

e) $x^2 + x$

f) $x^2 - 4x$

QUESTION -2

Given that $p(x) = x^2 - 9x + 14$

a) Find $p(1)$.

b) Write a first degree factor of $p(x) - p(1)$.

c) Write $p(x) - p(1)$ as the product of two first degree polynomials .

d) What are the solutions of the equation $p(x) - p(1) = 0$?

QUESTION - 3

If $x^2 - 9x + 18 = (x - a)(x - b)$

a) What is the value of $a + b$?

b) What is the value of ab ?

c) What are the solutions of the equation $x^2 - 9x + 18 = 0$?

d) Write $x^2 - 9x + 18$ as the product of two first degree polynomials ?

If $x^2 - 2x - 15 = (x - a)(x - b)$

a) What is the value of $a + b$?

b) What is the value of ab ?

c) What are the solutions of the equation $x^2 - 2x - 15 = 0$?

d) Write $x^2 - 2x - 15$ as the product of two first degree polynomials ?

QUESTION - 5

Given that $p(x) = x^2 - 9x + 14$

a) Find $p(2)$.

b) Write $p(x)$ as the product of two first degree polynomials .

c) What are the solutions of the equation $p(x) = 0$?

QUESTION - 6

Given that $p(x) = 3x^2 - 5x + 4$

a) Find $p(1)$.

b) Write a first degree factor of $p(x) - p(1)$.

c) Write $p(x) - p(1)$ as the product of two first degree polynomials .

d) What are the solutions of the equation $p(x) - p(1) = 0$?

QUESTION - 7

Given that $p(x) = 5x^2 - 3x - 2$

a) Find $p(1)$.

b) Write $p(x)$ as the product of two first degree polynomials .

c) What are the solutions of the equation $p(x) = 0$?

QUESTION - 8

If x is a natural number

a) What number is to be added to $x^2 + 8x$ to get a perfect square ?

b) If $x^2 + kx + 49$ is a perfect square , which number is k ?

c) If $x^2 + mx + n$ is a perfect square , prove that $m^2 = 4n$.

d) Write a second degree polynomial which is a perfect square and having a factor $x + 3$.

QUESTION -9

Given that $p(x) = x^2 - kx + 12$. $x - 3$ is a factor of $p(x)$.

a) Which of the following is $p(3)$?

$[\quad -1 \quad , \quad 0 \quad , \quad 1 \quad , \quad 13 \quad]$

b) find the value of k .

c) Write $p(x)$ as the product of two first degree polynomials .

d) What are the solutions of the equation $p(x) = 0$?

QUESTION - 10

Given that $p(x) = x^2 - 7x + 10$.

a) Find $p(2)$ and $p(5)$.

b) Write $p(x)$ as the product of two first degree polynomials .

c) Write a second degree polynomial $q(x)$ with $q(1) = 0$ and $q(4) = 0$.

d) Write a second degree polynomial $f(x)$ with $f(3) = 0$ and $f(-2) = 0$.

QUESTION - 11

Given that $p(x) = x^2 + mx + n$. $x - 1$ is a factor of $p(x)$.

a) Which of the following is $p(1)$?

$[\quad -1 \quad , \quad 0 \quad , \quad 1 \quad , \quad 2 \quad]$

b) Prove that $m + n = -1$.

c) If $x - 1$ **is a factor of** $x^2 + kx + 5$ **.What is the value of** k ?

d) If $x - 1$ **is a factor of** $x^2 - 7x + u$ **.What is the value of** u ?

<h2 style="text-align:center;color:red">QUESTION - 12</h2>

Given that $p(x) = ex^2 + fx + g$. $x - 1$ **is a factor of** $p(x)$.

a) Which of the following is $p(1)$?

$$[\ -1 \ , \ 0 \ , \ 1 \ , \ 2 \ ]$$

b) Prove that $e + f + g = 0$.

c) If $x - 1$ **is a factor of** $3x^2 + mx + 2$ **, What is the value of** m ?

d) If $x - 1$ *is a factor of* $nx^2 + 8x - 13$ *, What is the value of* n ?

<h2 style="text-align:center;color:red">QUESTION - 13</h2>

Complete the table .

Solutions of the second degree equation $p(x) = 0$	Write $p(x)$ as the product of two first degree polynomials .
1 , 2	
3 , 5	
-2 , 6	
-4 , -7	
0 , 1	
0 , -9	