

PARHO PUNJAB , PARHAO PUNJAB - MATH TEAM(GURDASPUR)

Assignment-7

EX-2.2

Class -10th

RELATION BETWEEN ZEROES AND COEFFICIENTS OF POLYNOMIAL.

For this we will write a quadratic polynomial

$$\text{Let } P(x) = 2x^2 - 8x + 6$$

Here we need to split middle term '-8x' as a sum of two terms, whose product is $6 \times 2x^2 = 12x^2$

$$\text{So we will write: } 2x^2 - 8x + 6 = 2x^2 - 6x - 2x + 6$$

$$= 2x(x-3) - 2(x-3)$$

$$= (2x-2)(x-3)$$

$$= 2(x-1)(x-3),$$

The value of P(x) is zero when $x-1=0$ OR $x-3=0$

Means $x=1, 3$ are the zeroes of P(x).

$$\text{NOW: Sum of its zeroes} = 1+3 = 4 = \frac{-(-8)}{2} = \frac{-(\text{coeff. of } x)}{\text{coeff. of } x^2}$$

$$\text{Product of zeroes} = 1 \times 3 = 3 = \frac{6}{2} = \frac{\text{constant term}}{\text{coeff. of } x^2}$$

EXAMPLE: Find the zeroes of quadratic polynomial $x^2+7x+10$.and verify relation between the zeroes and the coefficients.

$$\text{SOLUTION: } x^2+7x+10 = (x+2)(x+5)$$

Therefore zeroes are -2,-5.

$$\text{Sum of zeroes} = -2 + (-5) = -7 = \frac{-7}{1} = \frac{-(\text{coeff. of } x)}{\text{coeff. of } x^2}$$

$$\text{Product of zeroes} = -2 \times -5 = 10 = \frac{10}{1} = \frac{\text{constant term}}{\text{coeff. of } x^2}$$

HOME WORK:

Find the zeroes of quadratic polynomial and verify relation between the zeroes and the coefficients.

1). $6x^2 - 3 - 7x$

2). $3x^2 - x - 4$