

Chapter 2: Polynomials

Case Study

In 2020 a robotic explorer, ROV0 9 was deployed on Mars. It uses polynomials to analyze the terrain heights, path safety and equipment movements. Key polynomials from its system includes:

$$H(x) = x^2 - 3x - 10$$

$$M(x) = x^3 - 3x^2 + 3x - 1$$

$$E(x) = (x + 11)^2 - 16$$



Q1. What is the degree of the polynomial and degree wise what should it be called?

- (a) Degree = 1; Linear Polynomial
- (b) Degree = 2; Quadratic Polynomial
- (c) Degree = 3; Cubic Polynomial
- (d) Degree = 4; Biquadratic Polynomial

Q2. Which one is a zero of polynomial $M(x)$?

- (a) $x = 0$
- (b) $x = 1$
- (c) $x = -1$
- (d) $x = 1$

Q3. What will be the factors of the polynomial $H(x)$?

- (a) $(x + 5)(x - 2)$
- (b) $(x - 5)(x + 2)$
- (c) $(x + 5)(x + 2)$
- (d) $(x - 5)(x - 2)$

Q4. To factorise the polynomial $E(x)$, which one of the following algebraic identity will be useful?

- (a) $(a^2 - b^2) = (a + b)(a - b)$
- (b) $(a + b)^2 = a^2 + 2ab + b^2$
- (c) $(a - b)^2 = a^2 - 2ab + b^2$
- (d) $(a + b)^2 - (a - b)^2 = 4ab$

Q5. What will be the value of $H(0)$?

- (a) 10 (b) -10 (c) -3 (d) -14

Q6: **Assertion(A):** $H(x)$ is a trinomial but $E(x)$ is a quadrinomial.

Reason(R): A polynomial having three unlike terms is known as a trinomial.

- (a) Both **Assertion (A)** and **Reason (R)** are correct and **Reason(R)** is the correct explanation of **Assertion (A)**.
- (b) Both **Assertion (A)** and **Reason (R)** are correct and **Reason(R)** is the correct explanation of **Assertion (A)**.
- (c) **Assertion (A)** is true but **Reason (R)** is false.
- (d) **Assertion (A)** is false but **Reason (R)** is true.