POLYNOMIALS

REMAINDER THEOREM

EXERCISE

Q.1 Find the remainder when $x^4 + x^3 - 2x^2 + x + 1$ is divided by $x - 1$.

Q.2 Find the remainder when $4x^3 - 3x^2 + 2x - 4$ is divided by

(a) $x - 1$ (b) $x + 2$ (c) $x + \frac{1}{2}$

Q.3 Determine the remainder when the polynomial $p(x) = x^4 - 3x^2 + 2x + 1$ is divided by $x - 1$.

Q.4 Find the remainder when the polynomial $f(x) = 2x^4 - 6x^3 + 2x^2 - x + 2$ is divided by $x + 2$

Q.5 Find the remainder when $p(x) = 4x^3 - 12x^2 + 14x - 3$ is divided by $g(x) = x - \frac{1}{2}$

Q.6 If the polynomials $ax^3 + 4x^2 + 3x - 4$ and $x^3 - 4x + a$ leave the same remainder when divided by $(x-3)$, find the value of a.

Q.7 Let R_1 and R_2 are the remainders when the polynomials $x^3 + 2x^2 - 5ax - 7$ and $x^3 + ax^2 - 12x + 6$ are divided by $x + 1$ and $x - 2$ respectively. If $2R_1 + R_2 = 6$, find the value of a.

Q.8 $p(x) = 2x^2 - 5x + 7$, $q(x) = x - 1$

Q.9 $p(x) = x^9 - 5x^4 + 1$, $q(x) = x + 1$

Q.10 $p(x) = 2x^3 - 3x^2 + 4x - 1$, $q(x) = x + 2$

ANSWER KEY

1. 2

2. (a) -1 (b) -52 (c) $\frac{-25}{4}$

3. 1

4. 92

5. $\frac{3}{2}$

6. -1

7. $a = 2$

8. 4

9. -5

10. -37