Exercise 2C

Question 1:

$f(x) = x^3 - 6x^2 + 9x + 3$

Now, $x - 1 = 0 \Rightarrow x = 1$

By the remainder theorem, we know that when f(x) is divided by (x - 1) the remainder is f(1).

Now, $f(1) = 1^3 - 6 \times 1^2 + 9 \times 1 + 3$

$= 1 - 6 + 9 + 3$

$= 13 - 6 = 7$

∴ The required remainder is 7.

Question 2:

$f(x) = (2x^3 - 5x^2 + 9x - 8)$

Now, $x - 3 = 0 \Rightarrow x = 3$

By the remainder theorem, we know that when f(x) is divided by (x - 3) the remainder is f(3).

Now, $f(3) = 2 \times 3^3 - 5 \times 3^2 + 9 \times 3 - 8$

$= 54 - 45 + 27 - 8$

$= 81 - 53 = 28$

∴ The required remainder is 28.

Question 3:

$f(x) = (3x^4 - 6x^2 - 8x + 2)$

Now, $x - 2 = 0 \Rightarrow x = 2$

By the remainder theorem, we know that when f(x) is divided by (x - 2) the remainder is f(2).

Now, $f(2) = 3 \times 2^4 - 6 \times 2^2 - 8 \times 2 + 2$

$= 48 - 24 - 16 + 2$

$= 50 - 40 = 10$

∴ The required remainder is 10.

********** END **********