



### Exercise 2C

Question 1:

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

$$\text{Now, } x - 1 = 0 \Rightarrow x = 1$$

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

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

$$= 1 - 6 + 9 + 3$$

$$= 13 - 6 = 7$$

$\therefore$  The required remainder is 7.

Question 2:

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

$$\text{Now, } x - 3 = 0 \Rightarrow x = 3$$

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

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

$$= 54 - 45 + 27 - 8$$

$$= 81 - 53 = 28$$

$\therefore$  The required remainder is 28.

Question 3:

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

$$\text{Now, } x - 2 = 0 \Rightarrow x = 2$$

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

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

$$= 48 - 24 - 16 + 2$$

$$= 50 - 40 = 10$$

$\therefore$  The required remainder is 10.

\*\*\*\*\* END \*\*\*\*\*