Evaluate the function at the indicated value, using the technique indicated. : Find w(-3) using synthetic substitution: w(x) = 11x^3 – 6x^2 + 2

Solution

$$w(x) = 11x^3 - 6x^2 + 2$$

    Using synthetic substitution, we would write the coefficients of *w*.

11   -6   0   2

    Now, we'll leave a space under those coefficients and draw a line. We will also write down the value of the
variable to be plugged in.

-3	11	6	0	2

    Once we do that, we are set up to evaluate *w* when $x = -3$. To accomplish that, we bring down the first number, –3, and multiply by 11, then add. Keep repeating this process. The last value will be the value of *w* when *x* is –3.

-3	11	-6	0	2
		−33	117	−351
	11	−39	117	−349

    The value of that polynomial expression when $x = -3$ is –349.

Answer: –349.