

$$\begin{array}{ccccccc}
 1 & & 0 & & 4 & & 6 \\
 + & & + & & + & & + \\
 0 & & & & & & \\
 \hline
 1 & & x & & 4+x^2 & & 6+4x+x^3
 \end{array}$$

The diagram illustrates the multiplication of the polynomial  $1 + 0x + 0x^2 + 0x^3$  by the polynomial  $1 + x + 4x^2 + 6x^3$ . The horizontal line separates the multiplicand from the multiplier. The terms of the multiplier are shown below the line, and the resulting partial products are shown above the line. Arrows indicate the multiplication of each term in the multiplier by the entire multiplicand:

- $1 \cdot (1 + 0x + 0x^2 + 0x^3) = 1 + 0x + 0x^2 + 0x^3$
- $x \cdot (1 + 0x + 0x^2 + 0x^3) = x + 0x^2 + 0x^3 + 0x^4$
- $4x^2 \cdot (1 + 0x + 0x^2 + 0x^3) = 4x^2 + 0x^3 + 0x^4 + 0x^5$
- $6x^3 \cdot (1 + 0x + 0x^2 + 0x^3) = 6x^3 + 6x^4 + 6x^5 + 6x^6$

The final result, shown above the line, is the sum of these partial products:  $1 + x + 4x^2 + 6x^3 + 0x^4 + 0x^5 + 0x^6$ .