

**Ejemplo 1.** Calcular la derivada de  $f(x) = x^3$ :

$$\begin{aligned}f'(x) &= \lim_{h \rightarrow 0} \frac{(x+h)^3 - x^3}{h} \\&= \lim_{h \rightarrow 0} \frac{3x^2h + 3xh^2 + h^3}{h} \\&= 3x^2\end{aligned}$$