

1. Compute the derivative of the following functions:

(a) $f(x) = 5x^4 + x^4 - 4x^3 + 8x^2 - 3x + 1$

(b) $f(x) = (x - 3)(x + 4)$

(c) $f(x) = (x^2 - 2)^{10}$

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

(e) $f(x) = x^2/(x - 1)$

(f) (Challenge Problem) $f(x) = x^2(x + 2)^2(x - 1)^4$

2. What does the derivative of a function represent?