1. Compute the derivative of the following functions:

   (a) $f(x) = 20x - 1$

   (b) $f(x) = 5x^2 + 2$

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

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

   (e) $f(x) = x^2 e^{-x}$

   (f) $f(x) = \cos(x) e^{-x}$

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

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

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

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

2. What does the derivative of a function represent?