

Derivatives via the Definition

Using only the **definition of the derivative**, algebra, and limit knowledge, determine the derivatives of the following functions. Write your steps properly, as on the class handout showing properly done examples. In particular, assert equalities where appropriate (a listing of expressions won't do), and keep your equations balanced.

1. $f(x) = 4x - x^2$

2. $g(x) = 2x^3 + 4$

3. $F(x) = \frac{2}{x+3}$

4. $G(x) = \frac{x}{x+3}$