Homework 3

1. Find the derivative of $f(x) = \frac{2}{3}x^3 + 2x^2 + 3x$, using the limit process.

2. Find the derivative of the function.

   (a) $f(x) = \frac{5}{4}x^{\frac{8}{5}} - 3x + 5$ (b) $f(x) = \sqrt[7]{x}$

3. Find the derivative of the function.

   (a) $f(x) = 3x^2\cos x - 5x\sin x$ (b) $f(x) = \frac{\sin^2 x}{2x}$