Quiz 1

Question 1: Evaluate the following limit.

(a) $\displaystyle \lim_{\Delta x \to 0} \frac{\sin^2(x+\Delta x) - \sin^2(x)}{\Delta x}$

(b) $\displaystyle \lim_{x \to 2} \frac{x^4 - 4x^3 + 16}{x^2 - 4}$

Question 2: Do as Directed.

(a) Check the continuity of the function $f(x) = 5[[(x-2)]] - 2$ at x=-2.

(b) Find the 2nd derivative of $f(x) = \dfrac{x}{\sqrt{x^2 + 4}}$

Question 3: Do as Directed.

(a) Apply the limit process to find the derivative of $f(x) = \sqrt{x+2}$ and find the equation of tangent line at the point (2, 2).

(b) Find k such that the line $y = -8x + 7$ is tangent to the graph of $f(x) = k^2 - 4x^2$