**Name:** _____ **Quiz 5**

**Math 151 Calculus I – Crawford** **26 April 2016**

Books and notes (in any form) are not allowed. You may use the given calculator, but you must show all supporting work. *Show all your work.* Good Luck!

**1.** (5 pts) Given $f(x) = 3 + x^2 + 2\sin x$, find the antiderivative $F$ that satisfies the condition $F(0) = -8$.

**2.** (5 pts) Find and simplify the sum $\sum_{i=1}^{n}(2i-3)$. [Your answer should no longer contain the summation (sigma) notation.]

[Note: This problem does not have a limit.]

Formulas that may or may not be helpful

$$\sum_{i=1}^{n} c = cn \qquad \sum_{i=1}^{n} i = \frac{n(n+1)}{2} \qquad \sum_{i=1}^{n} i^2 = \frac{n(n+1)(2n+1)}{6} \qquad \sum_{i=1}^{n} i^3 = \left[\frac{n(n+1)}{2}\right]^2 = \frac{n^2(n+1)^2}{4}$$

**3.** (5 pts) Given $f(x) = x^3 + 2\,x^2 - 2$

**(a)**. ***Explicitly*** write out Newton's Formula for finding the root of ***this function***. [You do not need to simplify.]

**(b)**. Start with an initial guess of $x_0 = 1.0$ and iterate Newton's Method to find $x_1$ to four decimal places.

**(c)**. Continue to iterate Newton's Method to find the root correct to four decimal places. List all iterations until it converges (to four decimal places).