MATH 160 Name_____

Final Examination Form A Spring 2004

Part II. (30 points.) A calculator and one 3" x 5" card with notes are allowed. Be sure to carefully show your use of calculus in justifying your results. Clearly state your conclusions in #5, #6, and #7 using complete sentences. ***60 minute time limit.*** NOTE!

4. (10 points) Evaluate each of the following:

a. $\frac{d}{dx}\left(100e^{0.08x}\right) =$

$8e^{0.08x}$ ✓✓

b. $\frac{d}{dx}\left(4\sqrt{x}\right) = \frac{d}{dx} 4x^{\frac{1}{2}} = 2x^{-\frac{1}{2}}$

$= \frac{2}{\sqrt{x}}$ ✓✓

c. $\frac{d}{dx}\left[3(2x+1)^2\right]$

$= 6(2x+1)^1(2)$

$= 12(2x+1)$

$= 24x + 12$ ✓✓

d. $\int (6x^2 + x - 3)dx$

$= 2x^3 + \frac{1}{2}x^2 - 3x + C$ ✓✓

e. $\int_0^4 \left(\sqrt{x}\right)dx = \frac{2}{3}x^{3/2}\Big|_0^4 = \frac{2}{3}(4)^{3/2} = \frac{16}{3}$ ✓✓