Student Name:_____ Student Number: _____ Serial No.:_____
Instructor: M. Z. Abu-Sbeih Math - 132.1 Quiz No.4 Date: 26-4-2006.

Show all your work. No credits for answers not supported by work.

1. A rectangular ***closed*** box with a square base is to have a volume of $1000\,in^3$. Find its dimensions if the box is to require the least amount of material.

2. Use differentials to approximate $\sqrt{25.6}$

3. If the marginal revenue for a manufacturer's product is $\frac{dR}{dq} = 700 - 6q - 8q^3$, find the demand equation.

4. Find the area enclosed by the graphs of $y = x^2 - 5$ and $y = 2x + 3$.

5. Evaluate the integrals:
   a. $\int x(1-2x^2)^5\,dx$
   b. $\int \frac{3x+2}{x-1}\,dx$
   c. $\int e^{2\ln(x-3)}\,dx$
   d. $\int (1+3^x)^2\,dx$

Student Name:_____ Student Number: _____ Serial No.:_____
Instructor: M. Z. Abu-Sbeih Math - 132.3 Quiz No. 4 Date: 26-4-2006.

Show all your work. No credits for answers not supported by work.

1. A rectangular ***open*** box with a square base is to have a volume of $500\,in^3$. Find its dimensions if the box is to require the least amount of material.

2. Use differentials to approximate $\ln(1.03)$

3. If the marginal revenue for a manufacturer's product is $\frac{dR}{dq} = 500 - 12q^2 - 8q^3$, find the demand equation.

4. Find the area enclosed by the graphs of $y = x^2 - 5$ and $y = 3 - 2x$.

5. Evaluate the integrals:
   a. $\int x^2(1-2x^3)^4\,dx$
   b. $\int \frac{2x-1}{x+2}\,dx$
   c. $\int \frac{x + x\ln x}{x^2}\,dx$
   d. $\int \frac{1+2^x}{5^x}\,dx$