

King Fahd University of Petroleum and Minerals  
College of Sciences

Department of Mathematics and Statistics

Quiz #4

St. ID:

St. Name:

Sec#: 02, 03

Serial#:

1)

$$\int_1^2 x \ln(x) dx =$$

- A)  $4 \ln 2$       B)  $2 \ln(2) - \frac{3}{4}$       C)  $\frac{\ln(2)^2}{4}$       D)  $4 \ln(2) - \frac{1}{4}$       E)  $\ln(2) - 4$

2) Use the formula  $\int \frac{du}{\sqrt{u^2 + a^2}} = \ln|u + \sqrt{u^2 + a^2}| + C$  to find  $\int \frac{dx}{\sqrt{9x^2 + 4}}$ .

- A)  $\ln|3x + \sqrt{9x^2 + 4}| + C$   
B)  $\ln|9x + \sqrt{9x^2 + 4}| + C$   
C)  $3 \ln|3x + \sqrt{9x^2 + 4}| + C$   
D)  $\frac{1}{3} \ln|3x + \sqrt{9x^2 + 4}| + C$   
E)  $\ln|x + \sqrt{9x^2 + 4}| + C$

3) The derivative of  $y = \tan(e^x)$  is:

- A)  $e^x (\sec(e^x))^2$   
B)  $e^x \sec(e^{2x})$   
C)  $\sec^2(e^x)$   
D)  $-e^x (\sec(e^x))^2$   
E)  $-e^x (\csc(e^x))^2$

4) The Derivative of  $y = \sec^2(\sin(2))$  is:

- A) 0  
B)  $\tan(\sin(2))$   
C)  $2 \sec^2(\sin(2)) \tan(\sin(2))$   
D)  $2 \sec^2(\sin(2)) \tan(\sin(2)) \cos(2)$   
E)  $-2 \sec^2(\sin(2)) \tan(\sin(2)) \cos(2)$

5)  $\int \frac{\sin \sqrt{x}}{\sqrt{x}} dx$

- A)  $-2 \cos \sqrt{x} + c$       B)  $-\cos \sqrt{x} + c$       C)  $\cos \sqrt{x} + c$       D)  $2 \cos \sqrt{x} + c$       E)  $\sin \sqrt{x} + c$