Quiz 6 for Mathematics 223
Introductory Analysis I - Fall 1999
Material Covered: Sections 5.3,5.4 of Workbook and text
For: 19th November

This is a 15 minute quiz, worth 6% and marked out of 6 points. The total possible points awarded for each question is given in square brackets at the beginning of each question. Anything that can fit on one side of an $8\frac{1}{2}$ by 11 inch piece of paper may be used as a reference during this quiz. A calculator may also be used. No other aids are permitted.

Name (please print): _____ . **ID Number:** _____.
last first

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1. [2] Let $f(x) = (4x - e^{\frac{3}{x}})^4$. Then $f'(x) =$ (circle one)

(i) $4(4x - e^{\frac{3}{x}})^3(2x - e^{\frac{3}{x}}(\frac{3}{x^2}))$ (ii) $4(4x - e^{\frac{3}{x}})^3(2x + e^{\frac{3}{x}}(-\frac{3}{x^2}))$
(iii) $4(4x - e^{\frac{3}{x}})^3(2x - e^{\frac{3}{x}}(-\frac{3}{x^2}))$ (iv) $4(4x + e^{\frac{3}{x}})^3(2x - e^{\frac{3}{x}}(-\frac{3}{x^2}))$
(v) $4(4x - e^{\frac{3}{x}})^3(2x - e^{\frac{3}{x}})$

2. [2] Let $f(x) = (4x - 3)\log_3 3x$. Then $f'(x) =$ (circle one)

(i) $(4x - 3)\frac{3}{3x \ln 3} + log_3(3x)(4)$ (ii) $(4x - 3)\frac{3}{3x \ln 3} - log_3(3x)(4)$
(iii) $(4x + 3)\frac{3}{3x \ln 3} + log_3(3x)(4)$ (iv) $(4x - 3)\frac{3}{3x \ln 3} + log_3(3x)$
(v) $(4x - 3)\frac{3}{3x \ln 3} + log_4(3x)(4)$

3. [2] Let $f(x) = (3x - 4)^{3e^x}$. Then $f'(x) =$ (circle one)

(i) $\left(\frac{3}{3x-4}\right) + \ln(3x - 4)(3e^x)$ (ii) $(3x - 4)^{3e^x} 3e^x \left(\frac{3}{3x-4}\right) + \ln(3x - 4)$
(iii) $(3x - 4)^{3e^x}\left[3e^x\left(\frac{3}{3x-4}\right) + \ln(3x - 4)(3e^x)\right]$ (iv) $\left(\frac{3}{3x-4}\right) - \ln(3x - 4)(3e^x)$
(v) $(3x - 4)^{3e^x}\left[3e^x\left(\frac{1}{3x-4}\right) + \ln(3x - 4)(3e^x)\right]$

1. [2] (iii) $4(4x - e^{\frac{3}{x}})^3(2x - e^{\frac{3}{x}}(-\frac{3}{x^2}))$

2. [2] (i) $(4x - 3)\frac{3}{3x \ln 3} + log_3(3x)(4)$

3. [2] (iii) $(3x - 4)^{3e^x}\left[3e^x\left(\frac{3}{3x-4}\right) + \ln(3x - 4)(3e^x)\right]$