Quiz 3 for Mathematics 223
Introductory Analysis I - Fall 2001
Material Covered: Section 3.2 of workbook and text
For: Friday, 5th October

This is a 15 minute quiz, worth 5% and marked out of 5 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. [1 point] If $f(x) = x^2\sqrt{3x+4}$

Then $f'(x) =$ _____

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2. [2 points] Estimate the point(s) where the tangent line to the function $f(x) = 1.23x\sqrt{1.3-x^3}$ is/are horizontal. (Hint: Differentiate, then use GRAPH 2nd CALC.)

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3. [2 points]
Consider the two functions

$$f(x) = 2x+1, \quad g(x) = \frac{1}{x+1}$$

(a) The function

$g \circ f(x) =$ _____

(b) The function

$f \circ g(x) =$ _____

1. [1 point]
$f'(x) = x^2\left(\frac{1}{2}\right)(3x+4)^{-1/2}(3) + 2x(2x+4)^{1/2}$

2. [2 points]
$\boldsymbol{x \approx 0.804}$
$f'(x) = 1.23x\left(\frac{1}{2}\right)(1.3-x^3)^{-1/2}(-3x^2) + 1.23(1.3-x^3)^{1/2}$
define Y_1 as $f'(x)$, then GRAPH 2nd CALC Zero.)

3. [2 points]
Consider the two functions

$$f(x) = 2x+1, \quad g(x) = \frac{1}{x+1}$$

(a) $\frac{1}{3x+2}$

(b) $\frac{x+4}{x+1}$