

Name:

## Math 116 Practice Exam 1 Answers

October 7, 2010

1) (8 points) Find the first derivative for the following functions.

a)  $h'(x) = \frac{52x}{26x^2+4}$

b)  $f'(x) = \cos(x) \cdot 7^{x^2} + \ln(7) \cdot 2x \cdot \sin(x) \cdot 7^{x^2}$

c)  $g'(x) = \frac{1}{2\sqrt{x+2}} \cdot \frac{1}{x+3}$

2)

a)  $\sqrt{\frac{41}{42}}$

b) Apple: \$1101.70; Microsoft: \$1525.50; Microsoft is better in the short term for sheer amount of money!

**3)**

a)  $-3/11$

b) 1

4)

a)  $-(1/81)(8 - 36x^2 + 27x^4) \cos(3x) + (4/27)(-2x + 3x^3) \sin(3x)$

b)  $\frac{1}{10}(-7 + 5e^2 - 41 \ln(9/(10 - e^2)))$

c)  $x^3 - \arctan(x^3) + C$