

MATH 1850 Sec 011 and 012
CALCULUS I
QUIZ 8
October 26, 2010

Name (Last, First) _____

1. Find a linearization at a suitably chosen integer near x_0 , at which the given function and its derivative are easy to evaluate.

$$f(x) = x^2 + 2x, \quad x_0 = 0.1$$

Nearest integer is $a = 0$. Therefore the linearization at a is given by

$$L(a) = f(a) + f'(a)(x - a)$$

$$f'(x) = 2x + 2$$

$$f'(0) = 2$$

Therefore

$$L(0) = f(0) + f'(0)(x - 0)$$

$$\text{Hence } L(0) = 0 + 2(x)$$

$$L(0) = 2x$$