Mathematics 122 Quiz 16 Name: Key

(1) For the function given by the table

t	5.0	5.1	5.2
$h(t)$	6.72	6.80	6.88

2 pts

Give an approximation to $h(5.13)$ $h(5.13) \approx$ 6.824

$h'(5.1) \approx \frac{\Delta h}{\Delta t} = \frac{6.88-6.80}{5.2-5.1} = \frac{.08}{.1} = .8$

$h(5.13) \approx h(5.1) + h'(5.1)(5.13-5.1)$

$\approx 6.80 + .8(.03)$

$= 6.80 + .024$

$= 6.824$

1 pt for $h'(5.1) \approx .8$ (or $h'(5.2) \approx .8$)

(2) Compute the following derivatives:

(a) $y = 3x^2 + 2x - 9$ $y' =$ $6x+2$

1 pt

(b) $C = 1{,}234 - 30q - 2q^2$ $\frac{dC}{dq} =$ $-30-4q$

1 pt

(c) $w = \frac{2}{z^3} = 2x^{-3}$ $\frac{dw}{dz} =$ $-6x^{-4}$

1 pt

or $\frac{-6}{x^4}$