Math 124 Name _____

#9 DERIVATIVES 2.2

1. A function $T(x)$ is approximated by the following table of values:

x	1.0	1.4	1.8	2.2	2.6
$T(x)$	1.06	2.2	3.2	2.8	3.1

Estimate the following

(i) $T'(1.4)$, $T'(2.4)$

(ii) $\lim_{h\to 0}\dfrac{T(1.4+h)-T(1.4)}{h}$

(iii) The average rate of change of $T'(x)$ between $x=1.4$ and $x=2.4$.

(iv) The rate of change of $T(x)$ at $x=1$.

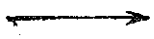
(v) Find the equation of the tangent line to $T(x)$ at $x=1$.

2. The values of the derivative $F'(x)$ are given below:

x	12	12.4	13
$F'(x)$	2	3	3.5

Use this to estimate the values of the function missing in the following table

x	12	12.4	13
$F(x)$	8		



3. $F(x) = 10^x$. Estimate $F'(1)$ using a numerical approach.

4. $G(s) = \frac{1}{s^2}$. Find $G'(2)$ using an algebraic approach.