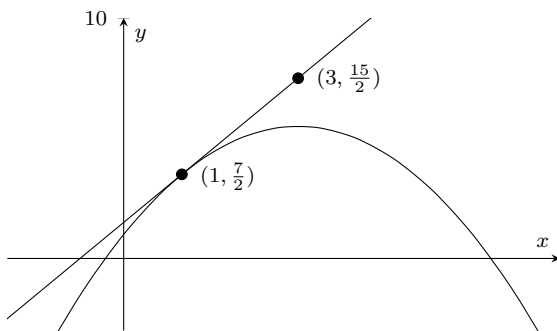


Name _____

Homework 2
Sections 2.1 & 2.2

1. (5) Determine the slope of the line which is tangent to the graph of $f(x) = x^3 - 7x + 13$ at $x = 2$.

2. (2) The following figure depicts a function $g(x)$ and its tangent line at a point. Use the figure to fill in the blanks.



$$g(1) = \underline{\hspace{2cm}}$$

$$g'(1) = \underline{\hspace{2cm}}$$

3. (5) Use the definition of the derivative to find $f'(9)$ for the function $f(x) = \sqrt{x}$. (Big hint: After you have correctly set up the limit, rationalize the *numerator*.)

4. (5) Suppose a particle is moving in the xy -plane, and that its distance, in feet, from the origin after t seconds is given by $d(t) = 7t - \frac{1}{4}t^2$, for $0 \leq t \leq 8$. What is the instantaneous velocity of the particle when $t = 6$?

5. (3) Suppose a continuous function, $g(x)$, has values given in the table below. Use these values to complete the table of values for $g'(x)$, with the “best” estimates for each derivative value.

x	-2	0	2	4	6
$g(x)$	10	15	18	12	20

x	-2	0	2	4	6
$g'(x)$					