

Math 122 Worksheet 5

Show all work for full credit.

1. Given the following data about a function $f(x)$,

x	5	10	15	20	25	30	35
$f(x)$	26	34.5	38	36.5	30	18.5	2

a. Estimate $f'(10)$.

b. Use your answer from (a) to write the equation of the tangent line to $f(x)$ at $x=10$.

2. Suppose my height H (in inches) is a function of my age t in years, so $H=f(t)$. Consider $0 \leq t \leq 16$, the first 16 years of my life.

a. What do you know about the sign of f' ? Explain.

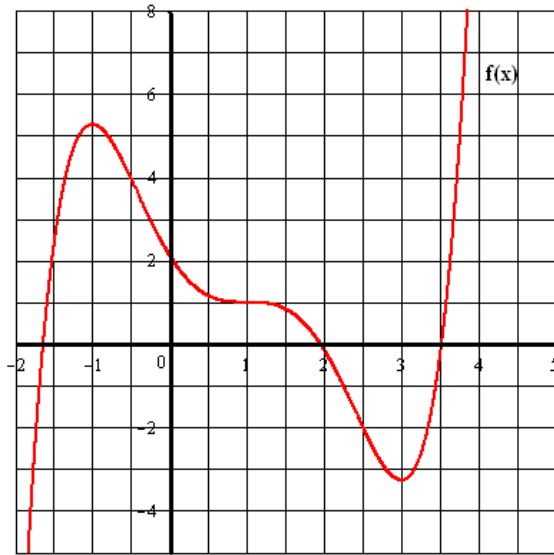
b. Explain the meaning of $f'(11)=3$ in everyday language.

3. Suppose that $f(x)$ is a function with $f(14)=34$ and $f'(14)=7.5$.

a. Estimate $f(16)$.

b. If the actual value is $f(16)=52$, what does your answer in (a) tell you about the concavity of $f(x)$ close to $x=14$? Explain.

4. Given the graph of $f(x)$, sketch the graph of $f'(x)$ on the same set of axes.



5. The graph of $y=f(x)$ is given. Are the following quantities positive, negative, or zero?

a. $f(A)$ _____ b. $f'(A)$ _____ c. $f''(A)$ _____

d. $f(B)$ _____ e. $f'(B)$ _____ f. $f''(B)$ _____

g. $f(C)$ _____ h. $f'(C)$ _____ i. $f''(C)$ _____

j. $f(D)$ _____ k. $f'(D)$ _____ l. $f''(D)$ _____

