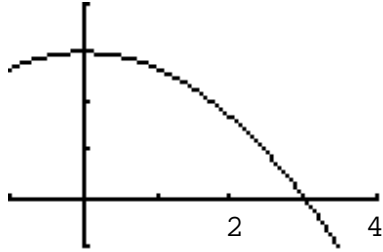


MA 181 WORKSHEET (3.9)

Name _____

The graph below is $f'(x)$, the derivative of $f(x)$.



1. Suppose that $f(2) = 4$. Write a linear approximation for $f(x)$ at $x = 2$.

2. Use your linear approximation to approximate
$$f(1.98) = \underline{\hspace{2cm}}$$
$$f(2.02) = \underline{\hspace{2cm}}$$
3. Were your approximations found in #2 overestimates or underestimates. Explain.
Hint: It has to do with the concavity of f and where the tangent line lies with respect to the curve of f .

4. Suppose that $f(3) = 7$. What would a linear approximation for $f(x)$ at $x = 3$, give for the value of $f(3.02)$?

Is this a good approximation? Explain why or why not.