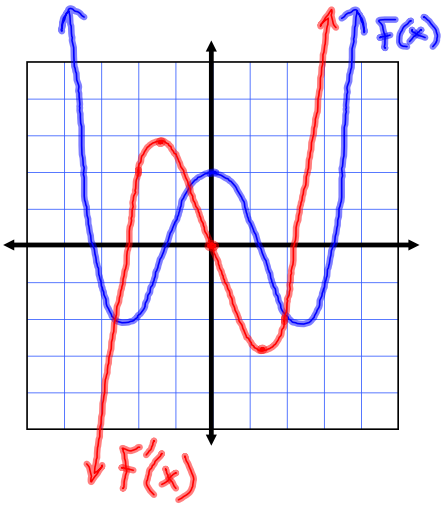
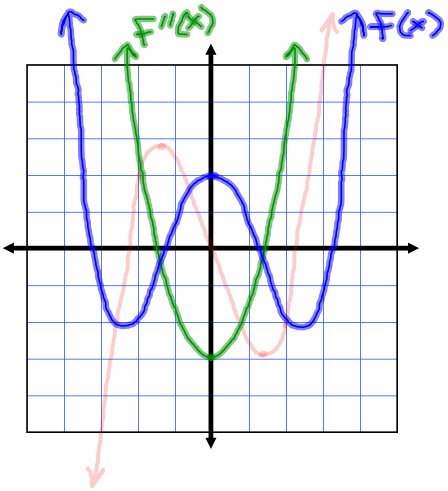
Calculus AB

3-3 and 3-4

1st and 2nd Derivative Tests

Look for relationships between the graph $f(x)$ and $f'(x)$ and $f(x)$ and $f''(x)$.





First Derivative Test-

1) if $f''(x)$ changes from negative to positive at c, then $f(c)$ is:

2) if $f''(x)$ changes from positive to negative at c, then $f(c)$ is:

3) if $f''(x)$ does not change signs at c, then $f(c)$ is:

Second Derivative Test-

1) if $f''(x) > 0$, then $f(c)$ is:

2) if $f''(x) < 0$, then $f(c)$ is:

3) if $f''(x) = 0$, then the test fails (use first derivative test).

Point of Inflection-

Find the critical points of f (if any). Find the open intervals on which the function is increasing or decreasing and locate all relative extrema. (pg 186)

22) $f(x) = x^3 - 6x^2 + 15$

36) $f(x) = \dfrac{x+4}{x^2}$

Assignment:

Pg. 186

17-41 odd,
85