Analyzing Function Using Derivatives

Feature	The function
f' is positive	is increasing
f' is negative	is decreasing
f' changes from + to − OR f'' is negative	has a local maximum
f' changes from − to + OR f'' is positive	has a local minimum
f' is increasing OR f'' is positive	is concave up
f' is decreasing OR f'' is negative	is concave down
f' has a zero OR f' is undefined	has a critical number (may have a local minimum or maximum)
f'' changes from − to + OR from + to − OR f' has an extreme value	has an inflection point