Optimize the following functions. Determine whether the turning points correspond to maximum/minimum/inflection point using first derivative and second derivative tests (both test should give you the same results):

1. $y = f(x) = 2x^3 - 30x^2 + 126x + 59$
2. $y = f(x) = x^4 - 6x^3 + 4x^2 - 13$
3. $y = -2x^3 + 15x^2 + 84x - 25$

Optimize the following function and apply Nth derivative test to determine if the function attains a relative maximum, minimum or possible inflection point:

1) $y = f(x) = -(x - 8)^4$
2) $y = f(x) = -2(x - 6)^6$

Maximize the profits for a firm, given total revenue $R = 4000Q - 33Q^2$ and total cost $C = 2Q^3 - 3Q^2 + 400Q + 5000$.