Calculus 12
9-5 The Second Derivative Test

1. Use the Second Derivative Test to find the local maximum and minimum values of each function, wherever possible.

a) $f(x) = 3x^2 - 4x + 13$

b) $g(x) = 2x^3 - 48x - 17$

c) $h(x) = x^3 - 9x^2 + 24x - 10$

d) $F(x) = 3x^4 - 16x^3 + 18x^2 + 1$

e) $G(x) = x^2 + \frac{16}{x}$

2. Use any method to find the local maximum and minimum values of each function.

a) $f(x) = x^4 - 6x^2 + 10$

b) $g(x) = \frac{x}{(2x-3)^2}$

c) $f(t) = \frac{t^2}{2t+5}$

3. Find the local maximum and minimum values of each function. Use this information, together with concavity, to sketch the curve.

a) $y = x - x^3$

b) $y = 3x^5 - 25x^3 + 60x$