

Optimization, I

1. Find the critical points and critical values of the following functions.

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

b. $g(t) = 2t^3 - 9t^2 - 24t + 7$

c. $y = 5xe^{-0.125x^2}$

d. $w = \frac{9u}{4 + 5u} - u$

2. Use the ***first derivative test*** to classify the critical values that you found in 1c. and 1d. as relative minimum values, relative maximum values or neither.
3. Use the ***second derivative test*** to classify the critical values that you found in 1a. and 1b. as relative minimum values, relative maximum values or neither.