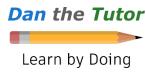
AP Calculus AB - Unit 4



Problem Set 20: Extrema and the First Derivative Test

Find the relative (local) extrema for the following functions (just the x-values). Also state whether the point is a maximum or minimum.

1.
$$f(x) = -x^2 + 2x - 3$$

2.
$$g(x) = x^{1/3}(x-4)$$

AP Calculus AB – Unit 4



$$3. \quad x(t) = t^2 e^t$$

4.
$$s(p) = p(p^3 - 4p^2 + 4p)$$

AP Calculus AB - Unit 4



Find the absolute (global) extrema for the following functions along the given interval. (x and y-values)

5.
$$f(x) = 3x^2 - 5x + 4$$
 on the interval $[-2, 2]$

6.
$$h(x) = -x^3 + 2x^2$$
 on the interval [-1,2]

AP Calculus AB - Unit 4



7.
$$y = \sin\left(\frac{x}{2}\right) + 1$$
 on the interval $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$

8.
$$w = \sqrt{9 - x^2}$$
 on the interval [-3,3]