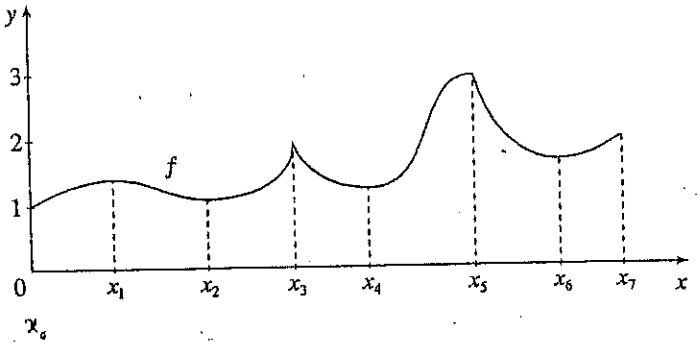
Maximum + Minimum Values Quiz Name _____

Turn in all work.

(1) For the following questions, consider the graph of f given below:



a) What interval(s) is f(x) continuous? _____
b) What interval(s) is f(x) differentiable? _____
c) State the critical numbers. _____
d) State the local maximum(s). _____
e) State the local minimum(s). _____
f) State the absolute maximum. _____
g) State the absolute minimum. _____

(2) Let $f(x) = x^{1/2}(1 - x)$ for $x \geq 0$. Find the absolute maximum of $f(x)$ on the interval $[0, 4]$.

A) 0 B) $\frac{2}{(3\sqrt{3})}$ C) -6 D) $\frac{1}{3}$

E) 4 F) $\frac{2}{\sqrt{3}}$ G) $\sqrt{3}$ H) $2\sqrt{3}$

(3) Find the absolute minimum and maximum values of the function $f(x) = 4x^3 - 15x^2 + 12x + 7$ on the closed interval $[0, 3]$.

A) 0, 3 B) 0, 5 C) 3, 5 D) 3, 9.75

E) 3, 16 F) 5, 7 G) 7, 16 H) 5, 10.25

For #4-6, use the closed interval method to find the absolute maximum and minimum.

4. $3x^5 - 5x^3 - 1$ $[-2, 2]$

5. $\sqrt{9 - x^2}$ $[-1, 2]$

6. $x - 2\cos x$ $[-\pi, \pi]$