

Present neatly. Justify for full credit. No Calculators.

Name \_\_\_\_\_ Score \_\_\_\_\_ ~5 minutes / A

1.

If  $f(x) = x^2 + 10 \sin x$ , show that there is a number  $c$  such that  $f(c) = 1000$ .

Present neatly. Justify for full credit. No Calculators.

Name \_\_\_\_\_ Score \_\_\_\_\_ ~5 minutes / F

1.

- Suppose  $f$  is continuous on  $[1, 5]$  and the only solutions of the equation  $f(x) = 6$  are  $x = 1$  and  $x = 4$ . If  $f(2) = 8$ , explain why  $f(3) > 6$ .