

MATH U242  
QUIZ #3

Name \_\_\_\_\_

For full credit show all of your work.

**Exercise 1** (4pts). Use the trapezoid rule and  $n = 4$  to estimate the integral  $\int_0^{1/2} \sin(x^2) dx$ .

**Exercise 2** (4pts). Use Simpson's rule and  $n = 4$  to estimate the integral  $\int_0^{1/2} \sin(x^2) dx$ .

**Exercise 3** (2pts). Given the integral  $\int_0^{1/2} \sin(x^2) dx$  and the facts that  $|f''(x)| \leq 3$  and  $|f^{(4)}(x)| \leq 25$  on  $[0, 1/2]$  compute the maximum errors obtained in using the trapezoid rule and Simpson's rule with  $n = 4$ .