CALCULUS I
Spring, 2000

QUIZ 13

Directions. Show all work to receive credit.

1. Use Simpson's rule to write down an approximation for the integral below with \( n=4 \). You are not expected to evaluate the sum, just to write down the sum.

\[
\int_{0}^{1/2} \sin(x^2)\,dx
\]

\[
\frac{1}{24} \left[ \sin(0)^2 + 4 \sin \left(\frac{1}{8}\right)^2 + 2 \sin \left(\frac{1}{4}\right)^2 + 4 \sin \left(\frac{3}{8}\right)^2 + \sin \left(\frac{1}{2}\right)^2 \right]
\]

2. Integrate:

\[
\int x \sin(x^2)\,dx
\]

\[\frac{-1}{2} \cos(x^2) + C\]

\[\Delta x = \frac{1}{4} = \frac{1}{8}\]
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1. Use Simpson's rule to write down an approximation for the integral below with n=4. You are not expected to evaluate the sum, just to write down the sum.

\[
\int_0^{1/2} \sin(x^2)dx
\]

Same as other version

2. Integrate:

\[
\int \frac{(\ln x)^2}{x} dx
\]

\[
\frac{(\ln x)^3}{3} + C
\]

-2 no C