

Math 10A

Quiz 6; Tuesday, 7/17/2018

Time: 3 PM

Instructor: Roy Zhao

Name: _____

Circle True or False. (1 point for correct answer, 0 if incorrect)

1. True False We can tell whether the midpoint rule approximating is an over or underestimating by looking at the first derivative.
2. True False Using Simpson's method will always give the exact answer when integrating a quadratic equation.

Show your work and justify your answers. Please circle or box your final answer.

3. (10 points) (a) (4 points) Approximate $\int_{-\pi}^{\pi} \cos(x)dx$ using the Trapezoid rule with $n = 4$ trapezoids. (Simplify your answer)

(b) (3 points) What is the maximum error in the previous estimation?

(c) (3 points) What is the smallest number of intervals n you need to use in order to guarantee that the trapezoid approximation of $\int_0^1 \frac{x^3}{6} dx$ is within $\frac{1}{12.101}$.