Quiz 5

Graded

Student

Ivan Wang

Total Points

10 / 25 pts

Question 1

Estimating a definite integral

4 / 9 pts

Left end points of the 4 subintervals

Worth 4 points

✔ **– 3 pts** **Exactly three** left endpoints are incorrect or missing (not listed). Do not take points off if Δx is incorrect but student finds endpoints correctly using incorrect width

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Construction of estimate

Worth 3 points

✔ **– 2 pts** Integrand $f(x)$ is evaluated incorrectly at **exactly four or more** left endpoints in the estimate. Base this on what the student identifies for $f(x)$

Question 2

Evaluating definite integrals using FTC 2

6 / 16 pts

2.1 **(a)**

4 / 5 pts

Antiderivative $F(x)$ of integrand

Worth 3 points

✔ **– 1 pt** **Exactly one** term in antiderivative is incorrect

2.2 **(b)**

2 / 6 pts

Antiderivative $F(x)$ of integrand

Worth 4 points

✔ **– 4 pts** Antiderivative of integrand is completely incorrect

2.3 **(c)**

0 / 5 pts

✔ **– 5 pts** No part of the solution is correct

Quiz 5: MTH 141- TR
Worth: 25 points
Time Limit: 20 Minutes

Name: Ivan Wang

Student ID:

5	0	4	1	4	3	2	1

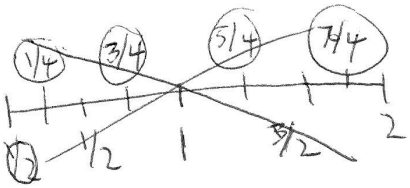
Authorized item(s): None. This is a closed-note, closed-book quiz. Calculators are not allowed.

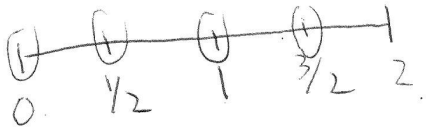
This quiz has 2 questions. The backside of each page of this quiz will not be graded.

1. (9 points) Estimate the definite integral below using a Riemann sum with $n = 4$ subintervals of equal width and the left endpoints of the subintervals. In your solution, state Δx and the left endpoints of the subintervals. Do not simplify your answer.

$$\int_1^3 e^{x^2}\,dx$$

$\Delta x = \frac{3-1}{4} = \frac{2}{4} = \frac{1}{2}$





$L_4 = \frac{1}{2}\left((e^{1/4})^2 + (e^{3/4})^2 + (e^{5/4})^2 + (e^{7/4})^2\right)$

$L_4 = \frac{1}{2}\left(0\cdot(e^0)^2 + \frac{1}{2}\cdot(e^{1/2})^2 + 1\cdot(e^1)^2 + \frac{3}{2}(e^{3/2})^2\right)$

$L_4 = \frac{1}{2}\left(0 + \frac{1}{2}(e) + e^2 + \frac{3}{2}(e^3)\right)$

Name: Ivan Wang Student ID: 5 0 4 1 4 3 2 1

2. (16 points) Evaluate the definite integral. There is no need to simplify your answer.

(a) (5 points) $\int_0^2 (3x^2 + 8x - 5)\,dx$

$f(x) = 3x^2 + 8x - 5$ is continuous, can use FTC 2

$F(b) - F(a)$

$\frac{3x^3}{3} + \frac{8x^2}{2} - 5x = x^3 + 4x^2 - 5x + C$

$(3(2)^2 + 8(2) - 5) - (3(0)^2 + 8(0) - 5) =$

$12 + 16 - 5 + 5 = 28$

(b) (6 points) $\int_{-1}^3 (e^x - 2\sin x + 4)\,dx$

$F(b) - F(a)$

$(e^3 - 2\sin 3 + 4) - (e^{-1} - 2\sin(-1) + 4)$

(c) (5 points) $\int_1^3 \frac{2 - x^3}{x}\,dx$

$F(b) - F(a)$

$\left(\frac{2 - 3^3}{3}\right) - \left(\frac{2 - 1^3}{1}\right)$