

Name:
Score:

Math 441
Quiz 3

Read all directions and answer the questions the best that you can. The quiz contains 50 points and reasonable work is expected to be shown for all problems.

Part 1 (7 points)

Find over and under estimates for the area under the curve $f(x) = x^2 + 1$ from $x = 0$ to $x = 2$ using 4 rectangles.

Part 2 (5 points)

Find the exact area under the curve $f(x) = x^2 + 1$ from $x = 0$ to $x = 2$.

Part 3 (2 points each)

Use the graph of $g(x)$ to answer the following.

$$\int_{-1}^2 g(x) dx$$

$$\int_2^4 g(x) dx$$

$$\int_{-1}^4 g(x) dx$$

Part 4 (5 points each)

Evaluate all of the following integrals.

1.) $\int x^{4/7} - 4x^{-2} - 4\sec^2 x \, dx$

2.) $\int 3\sin \theta - \csc \theta \cot \theta \, d\theta$

3.) $\int \sqrt[3]{x^5} + \frac{6}{x^4} \, dx$

4.) $\int_2^3 x^2(4x - 3) \, dx$

5.) $\int 8x^3(x^4 + 2)^5 \, dx$

Part 5 (7 points)

Find $h(x)$ given $h'(x) = 5x^4 - 12x^2 + 6 - 4\sin x$ and $h(0) = 3$