

Math 172 Quiz 5

12 October 2018

Sections: 7.7, 8.1

Name: _____
Point values in

boxes

.**Show work. Little or no work may receive little or no credit.**Given: $\sin(2x) = 2 \sin x \cos x$ $\left\| \sin^2 x = (1 - \cos(2x))/2 \right\| \cos^2 x = (1 + \cos(2x))/2 \left\| \int \sec x = \ln |\sec x + \tan x| + C$ 1.

2

 Fill in the blanks. For $a > 0$,(a) the p -integral $\int_a^\infty \frac{dx}{x^p}$ converges for _____ and diverges for _____, and(b) the p -integral $\int_0^a \frac{dx}{x^p}$ converges for _____ and diverges for _____.2.

2

 Use the Comparison Theorem to show $\int_1^\infty \frac{dx}{x^4 + 3}$ converges.3.

3

 Using appropriate limit notation, evaluate the integral

$$\int_0^\infty \frac{2x}{(x^2 + 3)^2} dx.$$

4. 3 Find the area of the surface generated by rotating the graph of $y = x^3$ about the x -axis for $x \in [0, 1]$.