

Name:

SOLUTIONS

Quiz #11, December 3, 2007

1. Calculate  $\int_1^4 \sqrt{x} dx$ .

$$= \frac{2}{3} x^{3/2} \Big|_1^4 = \frac{2}{3} (4^{3/2} - 1^{3/2}) = \frac{2}{3} (8 - 1) = \frac{14}{3}$$

2. Let  $g(x) = \int_1^x \frac{t}{t^4 + t^2 + 1} dt$ . For what  $x$  values, if any, does  $g(x)$  have a local max or min. Hint: Find  $g'(x)$ ?

$$g'(x) = \frac{x}{x^4 + x^2 + 1} \text{ by FTC} \quad \leftarrow \begin{array}{c} - \\ 0 \\ + \end{array} \rightarrow g'$$

Local min at  $x=0$   
(actually a global min)

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