

Math 152

Show Your Work!
Good Luck!

February 2, 2009
Quiz #3 A

Name _____
(please print)

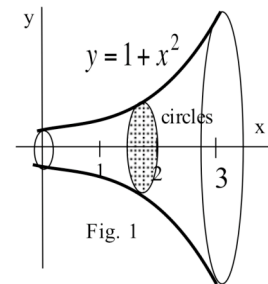
1. You are on the roof of a 42 foot tall building and are going to lift a 300 pound sofa from the ground to a balcony at a height of 20 feet above the ground. The chain you are using weighs 2 pounds per foot.

(4) (a) Represent the WORK you do as a definite integral: $WORK = \int$

(2) (b) Use the FTC (antiderivatives) to evaluate the integral in part (a): $WORK =$ _____ (number & units)

2. Represent the volume to the solid (slices are circles) in Fig. 1 as a definite integral and then use the FTC to evaluate the integral:

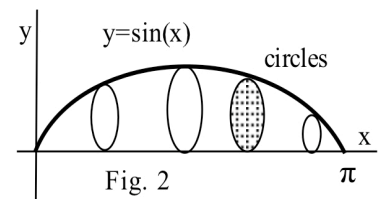
Volume = \int _____ = _____ (number)



(3) (2)

3. Represent the volume of the solid in Fig. 2 (slices are circles) as a definite integral and then use your calculator to evaluate the integral:

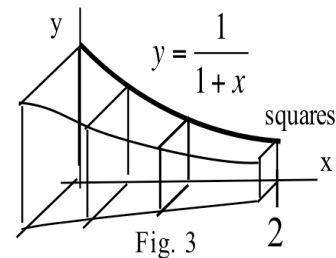
Volume = \int _____ = _____ (number)



(3) (1)

4. Represent the volume of the solid in Fig. 3 (slices are squares) as a definite integral. **Do NOT evaluate it.**

Volume = \int _____



(3)

5. The units of x are "**days**", the units of $f(x)$ are "**fish**" and the units of $g(x)$ are "**fish/day**".

What are the units of $\int \frac{g(x)}{f(x)} dx$? _____

(2)

6. Fig. 4 shows $y = f(x)$ for $a \leq x \leq b$. $H = \{\text{average value of } f \text{ for } a \leq x \leq b\}$.

(1) On the graph **label the location of H**.

