Show your work   February 8, 2011   Name _____

  Good Luck!   Quiz #4 B   please print

1. (a) Represent the length L of the curve

$f(x) = x + \cos(x)$ for $0 \le x \le 5$ as

definite integral. (Do not evaluate it.)

$$L = \int$$

(2)(2)

(b) Represent the length L of the parametric curve

$x(t) = 3 + t^2$, $y(t) = \sin(2t)$ for $1 \le t \le 4$
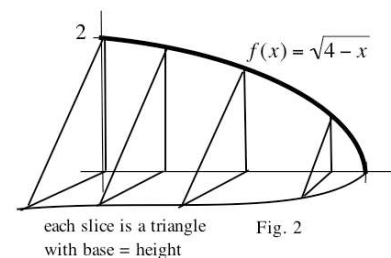
as definite integral. (Do not evaluate it.)

$$L = \int$$

2. V is the volume of the solid region in Fig. 1. Represent V

as a definite integral. Then **use the FTC** to evaluate V.

$$V = \int \qquad = \text{_____} \text{ (2 decimal digits)}$$

(4)(2)

$f(x) = \sqrt{4 - x}$
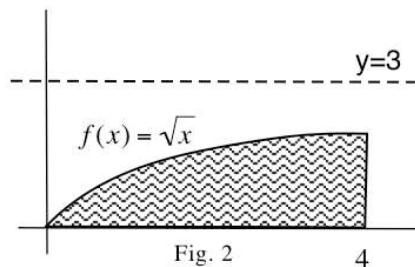
each slice is a triangle   Fig. 2
with base = height

3. The region between $f(x) = \sqrt{x}$ and the x-axis (Fig. 2) for $0 \le x \le 4$

is rotated around the line y=3. Represent the volume V of this solid

as a definite integral and **use your calculator** to evaluate V.
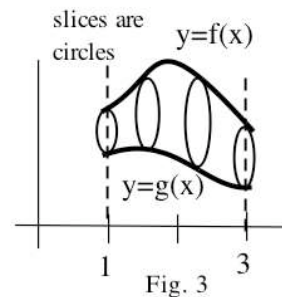
$$V = \int$$

$$= \text{_____} \text{ (2 decimal digits)}$$

(4)(2)

y=3

$f(x) = \sqrt{x}$

Fig. 2   4

4. Represent the volume V in Fig. 3 as a definite integral.

$$V = \int$$

(2)

slices are
circles

y=f(x)

y=g(x)

1   3
Fig. 3

5. What is the name of the approximate integration method that uses parabolas?

(1)   _____

6. (a) Name one project or area of math John von Neuman worked on. _____

    (b) What did Persi Diaconis do when he quit high school? _____

(1)(1)