Due at the beginning of class on the day of Test 1

Direction: Solve the problems in this worksheet on separate sheets of paper. Write your solution neatly. Use standard size paper. Clearly label each problem, and include each problem in the correct order. No ragged edges. Staple multiple pages. At the top of the first page put your name, Math 2414, and the title of the worksheet.Show all work to justify your answer. Answer with insufficient work will receive no credit.

Problem 1: Apply the shell method-revolve about y-axis

Find the volume of the solid formed by revolving the region about the y-axis

1. $y = e^{-x^2}$, $y = 0$, $x = 0$, $x = 1$.
2. $y = x^2$, $y = 4x - x^2$.

Problem 2: Apply the shell method-revolve about x-axis

Find the volume of the solid formed by revolving the region about the x-axis

1. $x = 4 - (y-2)^2$, $x = 0$.
2. $x + y = 3$, $x = 4 - (y-1)^2$.

Problem 3: Revolving about a horizontal line or vertical line

Find the volume of the solid formed by revolving the region about the given line

1. $y = 3x - x^2$, $y = x^2$ about the line $x = 2$
2. $x = y^2 + 1$, $x = 2$ about the line $y = -2$

Problem 4: Applicaction

The following table records the depth, measured every 25ft, of a circular pond with diameter 400ft. (From Larson's calculus).

x	0	25	50	75	100	125	150	175	200
depth	20	19	19	17	15	14	10	6	0

1. Use a graphing calculator to find a quadratic function $y = f(x)$ that models the data.
2. Set up the integral and use the integration capability of the calculator to find the volume of the pond.