**MATH 162 Practice QUIZ 2-B**

***1.*** A swimming pool has the shape shown below:



If the pool is 13 ft. deep, how much work is done in pumping all the water out? (*Note:* Water weighs 62.4 lbs per cubic foot.)

***2.*** The Great Cone of Alphaville was built by high school students during their summer vacation. The cone is 100 feet high and its base has a diameter of 80 ft. It has been built from bricks (made of straw) which weigh 3 lbs/ft3. Express as a Riemann integral the amount of work done in building the Great Cone.

***3.*** A chlorine solution is poured over the surface of a rectangular swimming pool that is 20 meters long, 13 meters wide, and 2 meters deep everywhere. Before the circulating pumps are turned on, it is discovered that the density of the chlorine solution at a height *h* meters above the bottom of the pool is given by (h) = 100(2 – h) gm/m3. (That is, the chlorine solution’s density is greater near the bottom of the pool.)

1. Express the total mass of chlorine in the pool as a Riemann sum.
2. Transform the Riemann sum of part (a) into a definite integral that gives the total mass of the chlorine solution in the pool. Evaluate the integral.

***4.*** The density of cars (in cars per kilometer) down a 20 km stretch of the Auto-Route near Bordeaux is given by (x) = 600 + 120 sin(x) where *x* is the distance in miles from the toll plaza and 0 ≤ x ≤ 20.

1. Write a Riemann sum that estimates the total number of cars along this 20 km stretch.
2. Convert this sum to a Riemann integral and evaluate it.

***5***. Find a parameterization of the circle centered at C = (7, 11) and having radius 4. Choose the clockwise direction.

***6***. Give a parameterization of the line segment beginning at P = (-3, 4) and terminating at Q = (9, 9).

***7***. Parameterize one cycle of the curve y = sin 14x.

*The limits of my language are the limits of my world.*

- Wittgenstein, [**Tractatus Logico-Philosophicus**](http://en.wikipedia.org/wiki/Tractatus_Logico-Philosophicus)