

Goals: To calculate the volume of a bundt cake using integral calculus, as well as to review various methods of regression.

1. Trace the outline of a slice of the cake on a piece of centimeter graph paper. The slice needs to be placed on the axes correctly so that the actual shape of the cake will be generated by rotating the region about the x-axis.
2. On your graph paper, draw a 3-dimensional sketch of the cake, based on your outlined sketch.
3. Record points from your sketch in the tables below. You should have two sets of data, one for the top of the cake and one for the bottom. Remember, it needs to be two functions, so you will need two separate equations.

x_{top}	y_{top}

x_{bottom}	y_{bottom}

4. Use your graphing calculator to reproduce the outline of the slice of cake. Record points from your sketch, and enter the data in to your graphing calculator. (STAT, Edit...).
5. Once data is entered, go to 2nd, y= to turn on the stat plot. Identify the list that has the x-coordinates and y-coordinates for each part of the cake. Make sure your statistical plot matches the original sketch on graph paper.
6. Determine the regression equations for the top and the bottom of the slice of cake. Decide which function best represents each set of data points. Use your correlation coefficients (r or r^2) to determine the best function for each set of data – the closer $|r|$ is to $|1|$, the better the fit.
 - a. Turn Diagnostics On – 2nd, CATALOG – find DiagnosticsOn
 - b. Regression equations are under the STAT menu – STAT, CALC
 - c. Write the equations below.

