Practice on Volume

A) i) The base of a certain solid is the region bounded above by the line $y = 9$ and below by the graph of $y = 4x^2$. Cross sections perpendicular to the y-axis are squares. Find the volume of this solid.

ii) A solid has a circular base of radius 1. Parallel cross-sections perpendicular to the base are equilateral triangles. Find the volume of the solid.

B) Find the volume of the following solids using both the washer/disk method and the method of cylindrical shells.

i) Region bdd by $y = x^2$ and $y = 5x$ rotated about $x - axis$.

ii) The region in i) rotated about the line $y = 30$.

iii) The region in i) rotated about $x = 5$.

iv) Set up, but do not evaluate an integral for the volume of the
solid obtained by the region bouded by $y = \sqrt{x-1}, y = 0, x = 5$ about the y-axis.

For more practice problems see WeBWorK homework set 7.