Work Sheet: Set up volumes integrals

Not due! Just a work sheet. Solutions revealed in class.

1. (a) Sketch the region R enclosed by the given curves:

$y = \sin(\pi x), \quad y = 0, \quad x = 1/2.$

(b) Using the method of **washers** (§6.2), **set up but do not evaluate** the definite integral which computes the volume of the solid found by rotating R from part **(a)** around the y-axis.

(c) Using the method of **shells** (§6.3), **set up but do not evaluate** the definite integral which computes the same volume as in part **(b)**.

2. (a) Sketch the region R defined by the inequalities:

$$x^2 + y^2 \leq 1, \quad y \leq 0.$$

(b) Using the method of **washers** (§6.2), **set up but do not evaluate** the definite integral which computes the volume of the solid found by rotating R from part **(a)** around the line $y = 1$.

(c) Using the method of **shells** (§6.3), **set up but do not evaluate** the definite integral which computes the same volume as in part **(b)**.