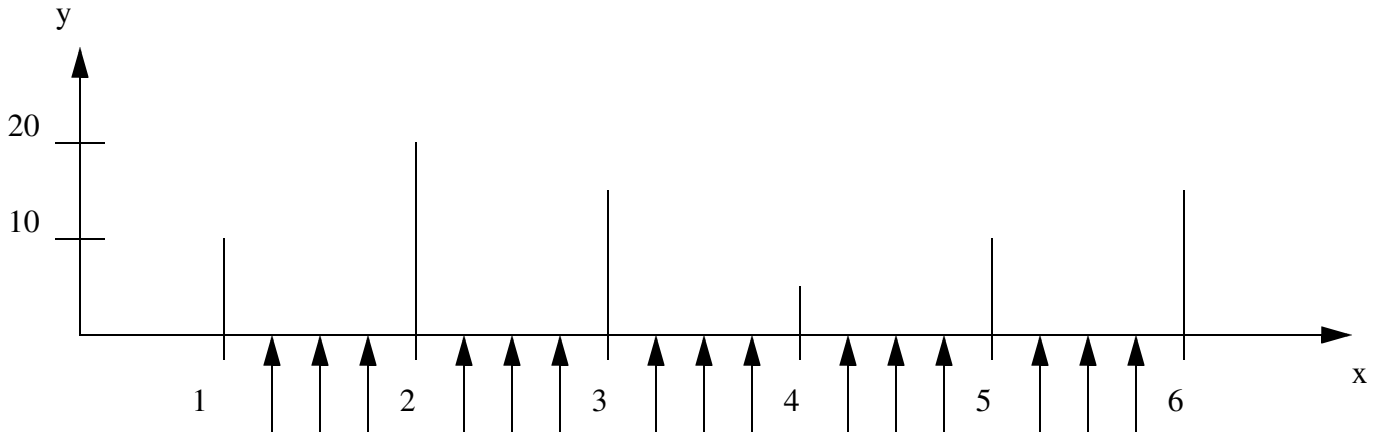


CSE 377/591 - Homework 2
 Fall 2011
 Due Thursday, October 20 in class

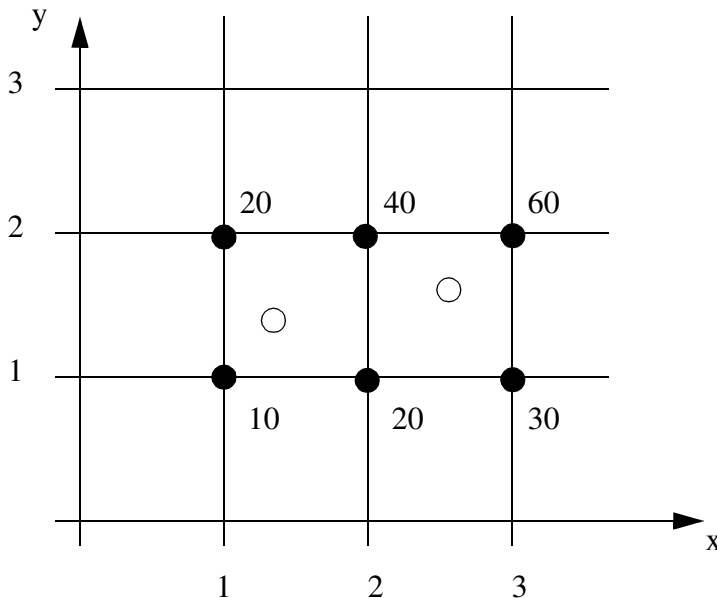
1. Interpolation (1D):

Estimate the values of the points indicated by arrows using
 a) nearest neighbor interpolation (assume $x=0.5$ behaves like $x=0.4999$)
 b) linear interpolation
 (Note, the height of the bars is in quarters of the unit length of the grid).



2. Interpolation (2D):

From the grid values given next to the full circles, estimate the values of the points indicated by the the two hollow circles with coordinates $(x,y) = (1.3, 1.2)$ and $(x,y) = (2.8, 1.7)$ using
 a) nearest neighbor interpolation
 b) bilinear interpolation



3. Data acquisition:

Consider the object in the figure below (left). Use the densities and shapes and construct the projection images on the four projection planes indicated.

4. Object reconstruction:

In the same figure, now consider the projections given on the right. Assume that all objects have the same densities. Try to reconstruct these, again using continuous representations. Think of a backprojection as a long shadow, where the shadow strength is given by the height of the object in the projection.

