# Math 126 Autumn 2009
Work with lines and planes.

1. Decide by yourself whether each of the following is true or false. Compare answers with one or two neighbors, then confirm your answers by using pieces of paper and/or a desktop as models for planes, and pens and/or pencils as models for lines.

   (a) Two lines perpendicular to the same plane are parallel.

   (b) Two lines parallel to the same plane are parallel.

   (c) Two planes perpendicular to the same (third) plane are parallel.

   (d) Two planes parallel to the same (third) plane are parallel.

   (e) Two lines perpendicular to the same (third) line are parallel.

   (f) Two lines parallel to the same (third) line are parallel.

   (g) Two planes either intersect or are parallel.

   (h) Two planes perpendicular to the same line are parallel.

   (i) Two planes parallel to the same line are parallel.

Use the following axes for questions 2 and 3.
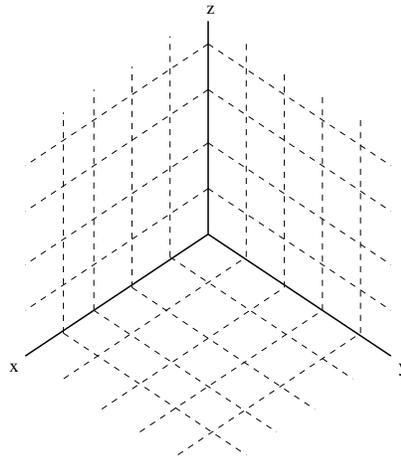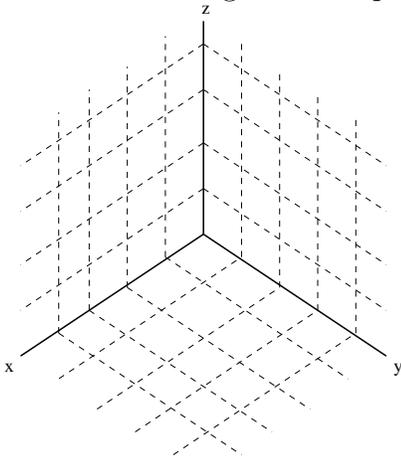
2. Find the equation and sketch the graph of a plane that is parallel to the yz-coordinate plane and contains the point $(2, 1, 3)$. How is this plane related to the other two coordinate planes, the xy-coordiante plane and the xz-coordinate plane?

3. Graph the plane P given by the equation $x + z = 2$.
   Is P parallel to any of the coordinate planes?
   Is P perpendicular to any of the coordinate planes?
   Is P parallel to any of the coordinate axes?
   Is P perpendicular to any of the coordinate axes?
   What fact about the equation for P immediately gives you the anwer to all of these questions?