

HOMEWORK 2, MATH 175 - FALL 2009
DUE WEDNESDAY SEPTEMBER 16TH

This homework assignment covers Sections 13.5 - 13.7 in the book.

1. Find an equation of a plane which contains the point $(1, -1, 2)$ and is parallel to the plane $2x - y + z = 1$.
2. Find parametric equations for the line of intersection of the planes $x - y + z = 1$ and $3x - 2y - z = 0$. Also find the angle between these two planes.
3. Find the distance between the parallel planes $2x + 4y - 6z = 1$ and $x + 2y - 3z = -2$.
4. Find the cross-sections of the surface $x^2 + y^2 + 2z^2 = 1$ in the planes $x = k$, $y = k$ and $z = k$. Sketch the surface.
5. Find the cross-sections of the surface $-x^2 - 2y^2 + 3z^2 = 1$ in the planes $x = k$, $y = k$ and $z = k$. Sketch the surface.
6. Change $(2, -3, 1)$ from rectangular to cylindrical and also spherical coordinates.
7. Write the equation $x^2 + y^2 + z^2 = 2x$ in cylindrical and also spherical coordinates.
8. The parabola $z = 9y^2$, $x = 0$ is rotated about the z -axis. Write an equation of the resulting surface in cylindrical coordinates.