EMORY UNIVERSITY DEPARTMENT OF MATHEMATICS & CS
Math 211 Multivariable Calculus
Spring 2012

Problem Set # 2 (due Friday 3 Feb 2012)

Planes: The plane through a point P and with normal vector $\vec{n}$ is given by
$$\vec{n} \cdot \overrightarrow{PX} = 0$$
where $X = (x, y, z)$ is the **general position** point. Writing $P = (P_1, P_2, P_3)$ and $\vec{n} = a\vec{\imath} + b\vec{\jmath} + c\vec{k}$, then this translates into
$$a(x - P_1) + b(y - P_2) + c(z - P_3) = 0, \quad \text{or} \quad ax + by + cz = aP_1 + bP_2 + cP_3.$$

Reading: CM 13.4 and 14.1-5
Note: About half of these problems are essentially "practice taking derivatives."

1. CM 13.4 Problems 28, 29

2. CM 14.2 Exercises 2, 5, 8, 10, 26, 27, 28, 35
            Problem 40

3. CM 14.3 Exercises 2, 4, 8 (find the equation of the tangent plane to the graph of the given function at the given point, express your answer in the form $ax + by + cz = d$)

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