

Math 335-002
Homework #2

Due date: January 30, 2008 (not collected)

1. Find the equation of a straight line which passes through the points $(1, 2, -2)$ and $(3, -1, 1)$, in the cross product form $(\mathbf{r} \times \mathbf{u} = \mathbf{b})$.
2. Find the equation of the plane that contains the points $(1, 0, 0)$, $(0, 2, 0)$, and $(0, 0, 3)$. Use the implicit dot product form, $\mathbf{r} \cdot \mathbf{n} = c$. (Hint: you will need a simple intermediate step involving vector algebra).
3. Problem 1.11(b,c,d) on page 19.
4. Problem 1.12 on p. 19
5. Find the equation of the line on which the two planes $\mathbf{r} \cdot \mathbf{a} = 2$ and $\mathbf{r} \cdot \mathbf{b} = 5$ meet, given $\mathbf{a} = (0, 1, 1)$ and $\mathbf{b} = (4, 0, 3)$ (see solution to problem 1.13 on p. 20).