

Math 233 Warm Up Problems

September 2, 2009

1. Find the angle between the two planes

$$2x + y - 5z = 32$$

$$x + 2y + 7z = \sqrt{17}$$

Lecture Problems

2. Calculate the determinants

$$\begin{vmatrix} 1 & 2 \\ 4 & -2 \end{vmatrix} =$$

$$\begin{vmatrix} 1 & 2 & 0 \\ 4 & -2 & 1 \\ 0 & 1 & 5 \end{vmatrix} =$$

$$\begin{vmatrix} -5 & -78 & 31 \\ 0 & 2 & 891 \\ 0 & 0 & -3 \end{vmatrix} =$$

3. Calculate the cross product

$$(-2, 1, -2) \times (1, -1, 3) =$$

4. Find two different unit vectors both orthogonal to $(-2, 1, -2)$ and $(1, -1, 3)$.
5. Find a parametrization of the circle centered at $(1, 5)$ with radius 7.
6. Find the equation of the line tangent to the curve

$$r(t) = (-2t + 1, t^2, t^3)$$

when $t = 1$.