Math 233 Warm Up Problems

September 8, 2009

1. Quiz

   (a) What is meant by "position vector?"

   (b) How can you tell the difference between a point and a vector?

   (c) Can you take the dot product of two points?

   (d) What do the following mean?

   $$\begin{pmatrix}1\\2\\3\end{pmatrix}, \quad \begin{bmatrix}1\\2\\3\end{bmatrix}, \quad (1,2,3), \quad <1,2,3>$$

   (e) Which of the following make sense and which do not?

   $$(A \cdot B) \times C$$
   $$A \cdot (B \times C)$$

2. Find a parametric equation for a circle centered at $(-11, 27)$ and with radius 93.

3. Find a parametric equation for the ellipse

   $$30(x-5)^2 + 16(y+19)^2 = 36$$

Lecture Problems

4. Set up integrals for the lengths of the curves

   (a) Length of $r(t) = (t, t^2, t^3)$ from $t = 1$ to $t = 7$.

   (b) Length of $r(t) = (e^t, e^{-t}, \ln t)$ from $t = 2$ to $t = 13$.

   (c) Length of $r(t) = (\cos t, \sin t, t, t^2)$ from $t = 0$ to $t = \pi$.