Math 233 Warm Up Problems

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http://www.dehn.wustl.edu/~blake/m233/

1. Add the vectors (points):

$$(1,2,3)+(4,-2,8)=$$
$$(1,2,3,-4,3,\pi)+(4,-8,1/2,8,9,\pi^2)=$$
$$(1,2,3)+(-2,3)=$$

2. Find the length of the vectors:

$$\|(-1,4)\|=$$
$$\|(1,2,3)\|=$$

Lecture Problems

3. Find the equation of the sphere in $\mathbb{R}^3$ with radius $\sqrt{7}$ and center at $(2,-7,\pi)$.

4. Find the unit vector in the direction of the given vector

$$V=(1,2,3) \qquad U=$$
$$V=(-1,-13,7) \qquad U=$$

5. Let $A=(8,1,-2)$ and $B=(1,4,-3)$.

   (a) Find the component of A along B.

   (b) Find the vector projection of A along B.

   (c) Find the scalar projection of A along B.

   (d) Find the orthogonal projection of A along B.