Math 224 Quiz 1 Name: _____

January 20, 2004

Show all work for credit.

Leave all answers as exact answers unless otherwise stated.

1. Show that the equation represents a sphere, and find its center and radius. $x^2 + y^2 + z^2 = 4x - 2y$

2. Find the sum of the vectors and illustrate geometrically. $< 0, 3, 2 >, < 1, 0, -3 >$

3. A woman walks due west on the deck of a ship moving at 3 mi/h. The ship is moving north at a speed of 22 mi/h. Find the speed and direction of the woman relative to the surface of the water.