

The majority of the credit you receive will be based on the completeness and the clarity of your responses. **Show all of your work and justify your solutions as much as possible.**
This is a 15 minute quiz and has 2 questions, for a total of 10 points

(5 points) 1. Show that the equation $2x^2 + 2y^2 + 2z^2 = 8x - 24z + 1$ represents a sphere.

(5 points) 2. Find a unit vector in the same direction as the vector $8\mathbf{i} - \mathbf{j} + 4\mathbf{k}$.