Please sign your name: _____

Math 335-002 * Spring 2015 * Quiz #2

1. Consider the following vector operations. Which of them give **zero** answer for **any** two vectors $\vec{a}$ and $\vec{b}$? Which do/does not make sense?

   a) $(\vec{a} - \vec{b}) \cdot (\vec{a} - \vec{b})$
   b) $(\vec{a} - \vec{b}) \times (\vec{a} - \vec{b})$
   c) $\vec{b} \cdot (3\vec{a} \times \vec{a} - \vec{b})$
   d) $\vec{b} \times (\vec{a} \times \vec{a} - 2\vec{b})$
   e) $\vec{a} \times (\vec{b} \times (\vec{a} \cdot \vec{b}))$
   f) $\vec{a} \times (\vec{b} \times (\vec{a} \times \vec{b}))$

2. Find the spherical coordinates of the Cartesian point $(-2, -2, -2)$

3. Describe and sketch the surface given in cylindrical coordinates by $r = 3z$