Prelab PHYS222 Odd Version

Name_____ Time lab meets_____or section_____

Experiment # 17-Electric Fields and Potential

1. What is electrical potential energy:

2. What is an equipotential line?

3. What is the electric field? What are the units (give both listed in theory section)?

4. Electric field lines are always perpendicular to _____.

5. Equation 4 of procedure is $E_x = -\frac{dV}{dx}$.

This equation is for the x direction only. Knowing that the gradient is a 3- dimensional vector operator, write the terms for y and z components using Eq-4 as your guide).

6. On page 323 of your text (Openstax - University Physics- Volume 2) in Figure 7.36 there is both a photo and topographical map of the Devil's Tower, Wyoming.

Make a rough sketch of the topographical map and clearly **label with an arrow** one place where you think the point of greatest curvature is (i.e., the place where the equipotential lines are closest together) and one **label (with an arrow**) one place at the point of least curvature (i.e., the place where the equipotential lines are farthest apart).

This is another way of asking which location would a ball rolls fastest and slowest, respectively. There are many correct answers *based upon this topo map* (which means everyone should not have the locations and directions).