Introduction to Geophysics, Fall 00 – Exam #2. Who?_____

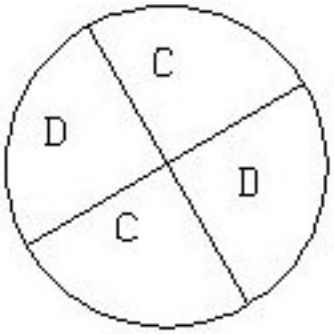
1. a. Carefully explain the difference between P and S waves:

b. On the 3D (east-west, up-down, and N-S) seismograms below **accurately** show the expected motions for a P-wave coming to the surface at 45^o to the vertical from the west; explain your thinking:

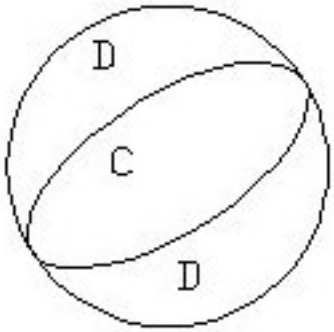
c. On the 3D (east-west, up-down, and N-S) seismograms below **accurately** show the expected motions for an S-wave coming to the surface at 45^o to the vertical from the west; explain your thinking:

2. Label the three fault-plane solution diagrams below as to whether they indicate normal, reverse, or strike-slip motion. Explain your thinking. If one of the diagrams represents an impossible situation just say so:

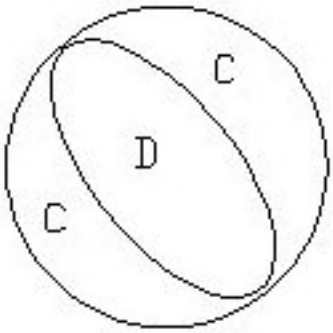
A



B



C



Type of fault:

_____ _____ _____

Strike of fault:

_____ _____ _____

Dip of fault:

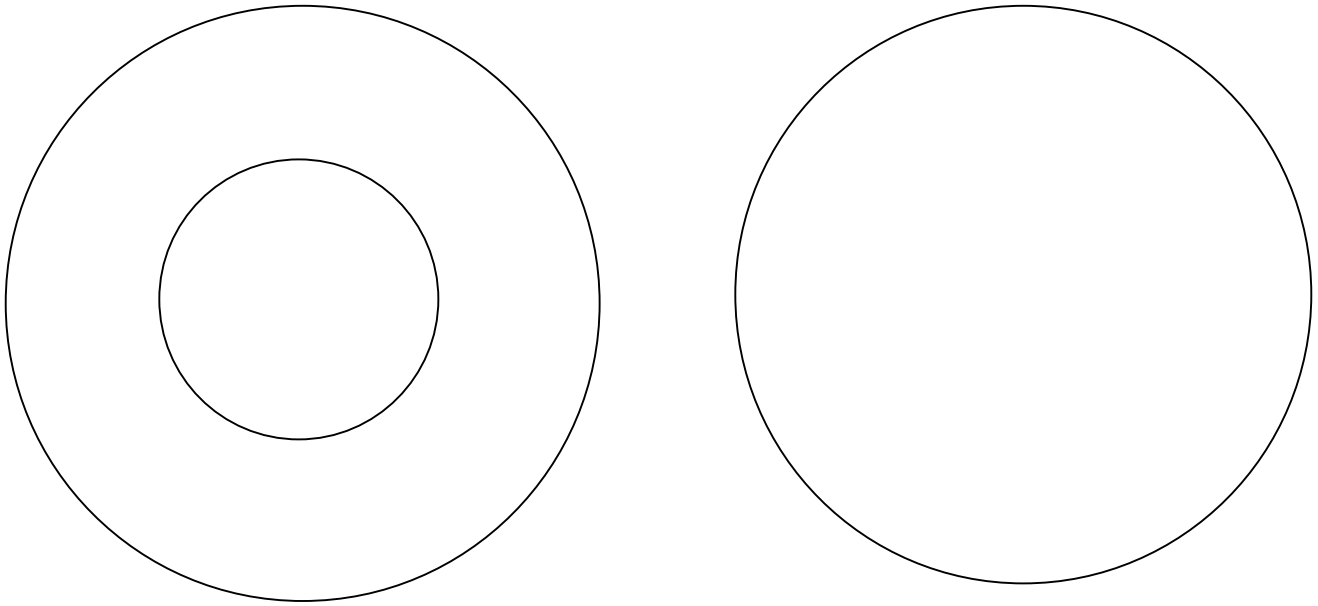
_____ _____ _____

Explain any ambiguities:

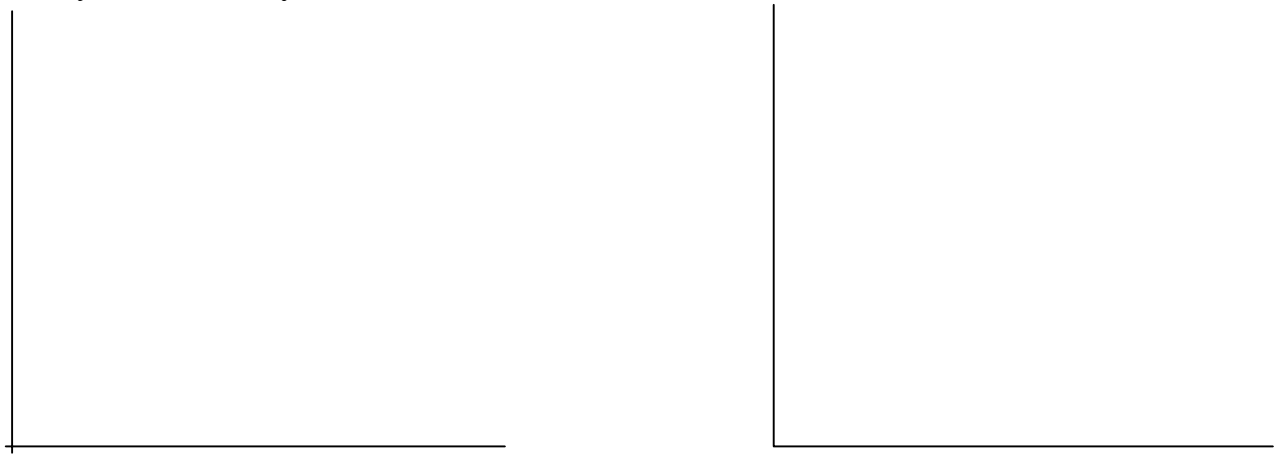
Explain the slip vector for one of the focal mechanisms.

3. A colleague suggests the two models below for the moon. The model on the left has a core whose P-wave velocity is significantly higher than that of the mantle. The model on the right has no core. Both models have the same P-wave velocities in their mantles. The mantle and core velocities are constant, they DO NOT change with depth.

a. Neatly and accurately sketch and label the P and PkP travel paths as appropriate.



b. Neatly and **accurately** sketch and label the T-delta curve for P and PkP for each model.



C. Explain which critical zone of delta values you would observe (and why) during a one-time whole-moon seismology experiment designed to differentiate between the two models.