Quiz 6: Continental Rifting (Ch. 7)

1. Name three physical changes which might trigger partial melting of the mantle.
   Temperature increase, decompression, add water.

2. Why is the effective flexural thickness of the lithosphere *thicker* than the seismogenic zone?
   The effective flexural thickness includes strength integrated across all layers - strength at longer time scales than the earthquake timescale.

3. What lithospheric conditions favor the development of metamorphic core complexes?
   thin, strong upper crust with a sub-horizontal detachment, mid/lower crustal stretching

4. Sketch the lithospheric strength curve for a continental plate with a felsic upper crust, mafic lower crust, and lithospheric mantle. Include an approximate scale on the depth axis.
   Must include: 3 layers, each with a brittle segment (linear) changing at depth to the creep power law at higher temp. Wide range of depth estimates are ok, should have Moho between 25-50 km and felsic crust should be half to three quarters of thickness. Bonus: temperatures of brittle ductile transition?