

**Homework 5 Solar Power Africa**  
**Due Monday October 3, 2022**

This week we went through how a solar panel works. We also heard from Solar is Freedom about domestic solar installations in Cincinnati.

- a) Explain the different thermal dependence of conductivity for a metallic conductor and a semi-conductor. What is the Hall effect?
- b) What is a band gap and how is important to photovoltaics?
- c) What is the difference between extrinsic and intrinsic conductivity for a semi-conductor? How is this important to a transistor?
- d) Explain how a solar cell works and plot current versus voltage for a solar cell showing the fill factor.
- e) What was interesting from the presentation by Solar is Freedom?