## Module 1B Questions:

1. Answer one of the two fermi estimation questions presented in lecture

2. You are studying whether **Activity** is associated with **Glucose12** in mice. Within each Diet group (Chow and HFD), Activity is **negatively** correlated with Glucose12; that is, more active mice tend to have lower glucose. However, when you pool *all* mice together, the overall correlation becomes **positive**.

   **a)** Explain in your own words *how* the overall correlation can reverse sign even though the pattern inside each group is consistent.
   **b)** Which variable is acting as the "lurking" or **confounding** variable in this situation?
   **c)** Describe a real-world biomedical example where this kind of reversal could mislead a researcher.
   **d)** How would you modify the analysis so that the paradox disappears?