PHYS1120
Summer 2025

1. You have opened your own jewelry store and you're excited to begin business. You have decided that it is more economical to forge gold rings yourself by melting your own stock of gold. Suppose that you have a starting capital of **1** kg of gold and energy limitations of **39.785** kcal. For gold, $c = 129$ **J kg^{-1} °C**, $L_f = 64,500$ **J kg^{-1}**, and the melting point is 1063 °C. Each gold ring you produce has a mass of **5** grams.

   (a) Do you have enough energy to melt all of the gold, assuming your gold starts at room temperature (**22** °C)? If so, how much energy remains? If not, what mass of gold remains unmelted?

   (b) How many rings can you make, given your previous answer.