2.008 Review
Topics

Process Planning
DFM
Injection Molding
Thermoforming
Cutting
Assembly
Joining
Problem 1
What are some of the problems with making this part using the kind of mill we have in our lab?
Problem 2

In an injection molding operation, what are the consequences of the following:

- Temp too high
- Temp too low
- Pressure too high
- Pressure too low
- Cooling time too low
- Shot size too big
Problem 3: Injection Molding

Draw a profile of cavity pressure as a function of time.
Problem 4: Injection Molding

This Yogurt cup cap has a diameter of 2.75” and a thickness of 0.040”. How many of these can I make simultaneously with an IM machine that is rated at 90ton clamping force and a 3.0 in$^3$ shot size. One making just one such lid, a test run required 9000 psi to get a full shot.
Problem 5

Why and where do sink marks form on injection molded parts?
Problem 6

How does our injection molding machine melt the plastic?
Problem 7

Where does Copper fit on this graph. [interaction time versus heat intensity].
Problem 8

\[ vt^n = C \]

Explain the qualitative significance of this formula.
Problem 9

What does the Jacobs number mean qualitatively?

\[ J = \frac{c_p(T_o - T_{melt})}{h_{fs}} \]
Melting

How much energy does it require to melt that projector up there?
Power is the specific cutting energy times the material removal rate. Let's use this to solve problem 2 on problem set 4.