**IN-CLASS ACTIVITY**

Sketch the following shapes in the front plane in Solidworks. Create a new part file for each sketch. Keep in mind that all sketches should be completely defined and that relations should be used when possible. All dimensions are in inches.

1. Sketch a 3” by 4” rectangle. Place the origin at the lower left hand corner. *(you don’t need to turn this in)*
2. Sketch an equilateral triangle with a base length of 2.75”. Place the origin at the midpoint of the base. *(you don’t need to turn this in)*

**HW5 I-BEAM SKETCHING EXERCISE**

Sketch the cross section of a W8x10 wide flange section (I-beam). Place the origin in the center of the cross section. Use the following dimensions for your sketch.

* Overall height of 7.89”
* Base width of 3.94”
* Flange thickness of 0.205”
* Web thickness 0f 0.170”
* All internal corners have a radius of 0.125”
* Extruded to a 3-inch length of I-beam

I-Beam properties taken from:

<http://www.efunda.com/math/areas/RolledSteelBeamsW.cfm>

**CHECKSHEET FOR I-BEAM SKETCHING EXERCISE ASSIGNMENT (HW5)**

(Submit this sheet as your assignment coverpage)

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NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ SECTION #: \_\_\_\_\_

**Sketching Exercise Final Products**

\_\_\_ Fully defined sketch of your I-beam that clearly shows all sketch relations and correct dimensions (2 pts)

\_\_\_ Expanded and annotated design tree (i.e., rename your I-beam sketches and features)

\_\_\_ Part information in part properties summary tab (w/ author, assignment number in keywords field, and assignment notes in comments field)

\_\_\_ Image of extruded I-beam to a 3-inch length

\_\_\_ Assign material properties (show material selected in the design tree) and use SW to compute the mass, volume, center of mass, and moments of inertia.

\_\_\_ Share two insights about SolidWorks learned through this assignment and provide supporting evidence/discussion/significance for your two insights (2 pts)

**Above and Beyond (Exemplary)**

\_\_\_ Thoughtfulness in sketch dimensioning/relations scheme

\_\_\_ Exceptional overall neatness

Point Deductions

\_\_\_ No cover page *(-1)*

\_\_\_ Not a .doc/.docx *(-1)*

\_\_\_ Incorrect filename *(-1)*

\_\_\_ Other:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Fully defined sketch of your I-beam

# Expanded and annotated design tree

# Part information in part properties summary tab

# Image of extruded I-beam to a 3-inch length

# Assigned material properties in design tree

# Insights about SolidWorks