Introduction to Working Model

Working Model software will be used in ME 2120 Statics to determine the forces in stationary systems. To access Working Model, go to room 152D Russ Engineering Center, and press the Start button in Windows. Go to All Programs/Working Model 2D/ Working Model 2D:

Only persons enrolled in College of Engineering and Computer Science courses are authorized to use this system. The reason for this is that this system was funded by a technology fee that is levied only on these students. Persons using this system should be prepared to produce a student ID, current validation and a class schedule if requested.

This computer is configured so that anything that is saved to the hard drive will be deleted automatically the next time the computer is booted. Consequently, be sure to save any files that you want to keep to some type of external storage before shutting down the system.

Reboot the computer before using to restore system to the default settings.

A note on printing: Printing is not "Free." The printers and supplies (as well as many, many other things) are paid for from the Student Technology Fee that you are charged for taking College of Engineering and Computer Science classes. Therefore, please do not use the printers for anything other than the material required for those specific classes. The Student Technology Fee fund can not afford to pay for the printing supplies for ALL of your classes, only for the classes for which the fee was charged.

No food or drinks are allowed at the computer. Please help keep this room and the equipment in it clean.
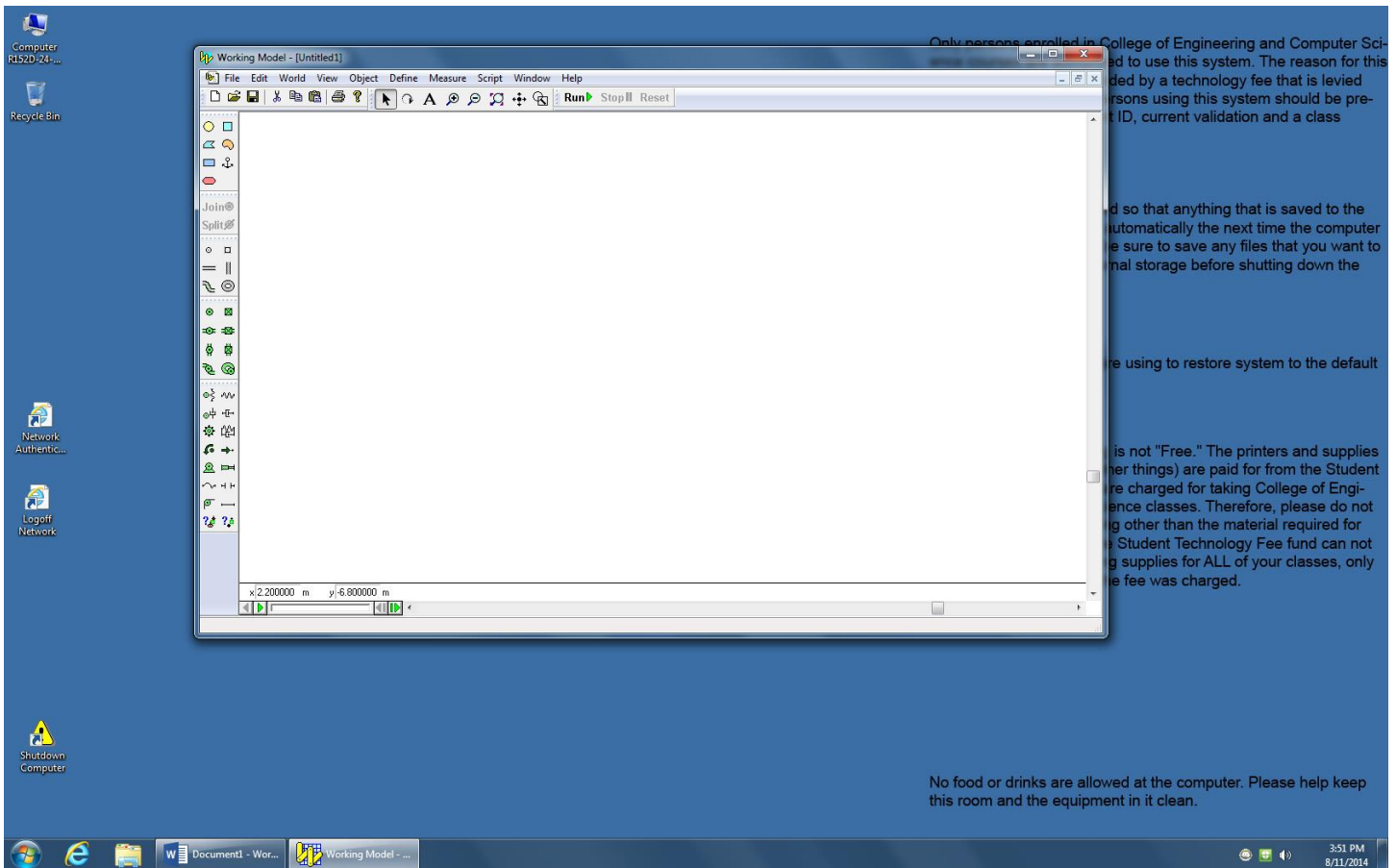

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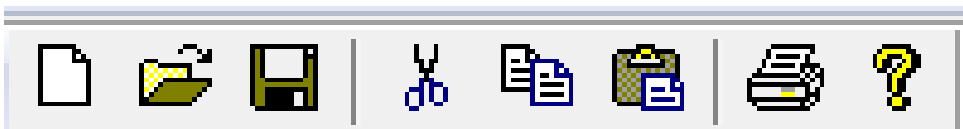
The Working Model Window is shown above. The major divisions in the Toolbars are as follows:

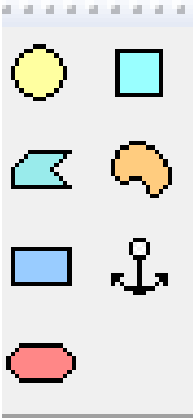Overall Toolbar:
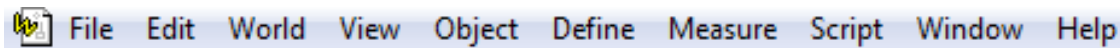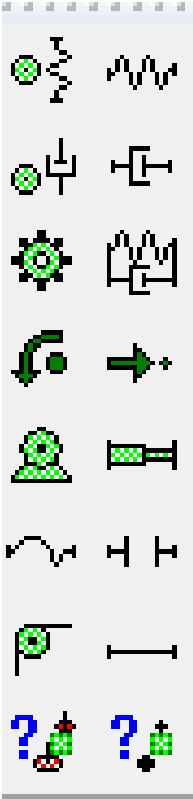

File Control:

View Control and Object Selection:

Simulation Control:

Object Construction/Manipulation:

Couplers and Drivers:

Motion Constraints:

Position/Angle Controls:

x `3.200000` m   y `-3.500000` m

Let's use Working Model to do Problem 2.45 in the Handouts:

2.45 Knowing that $\alpha = 20°$, determine the tension (a) in cable AC, (b) in rope BC.
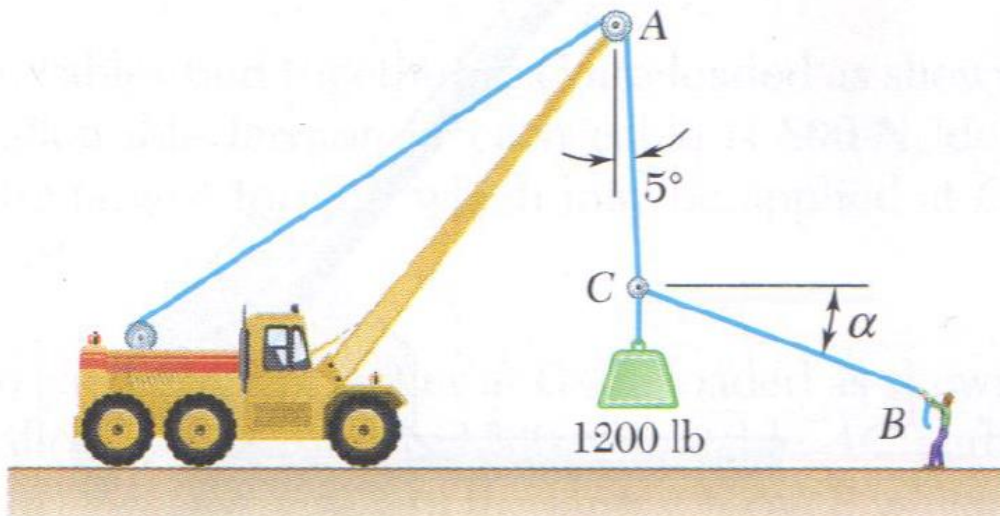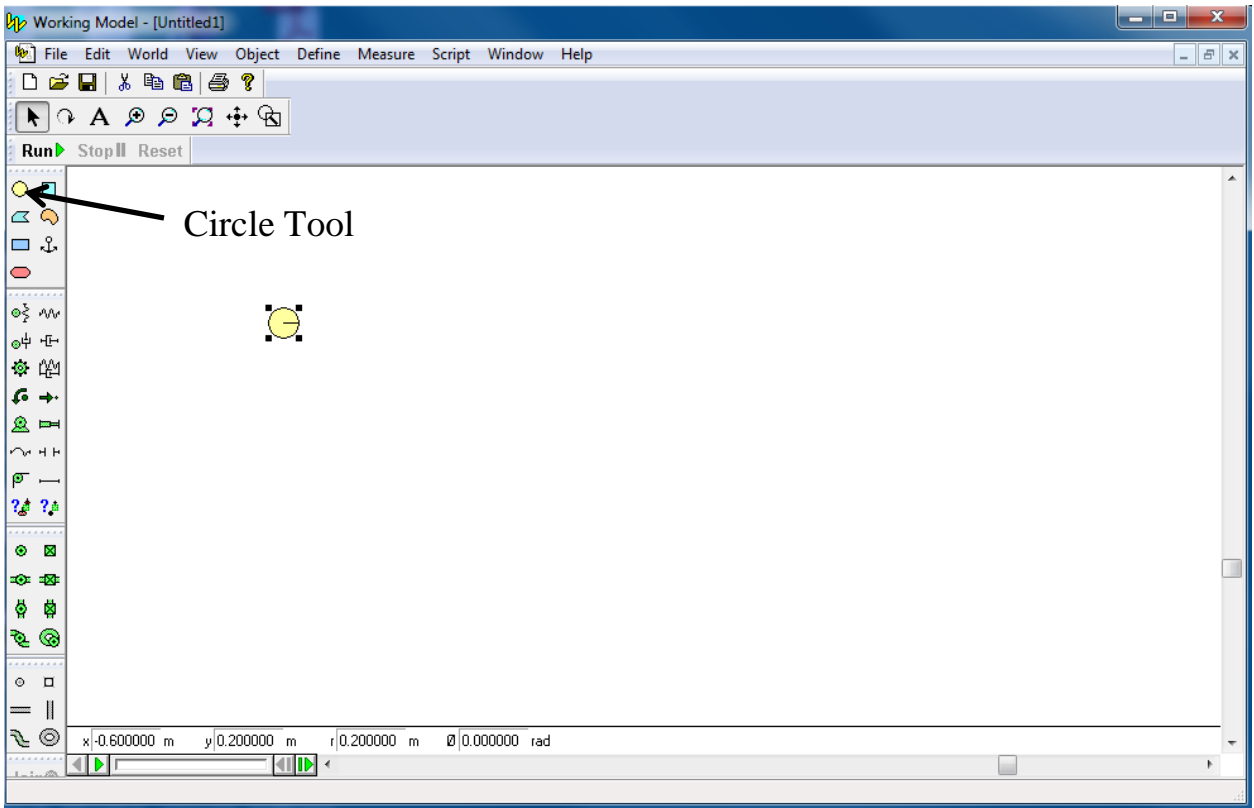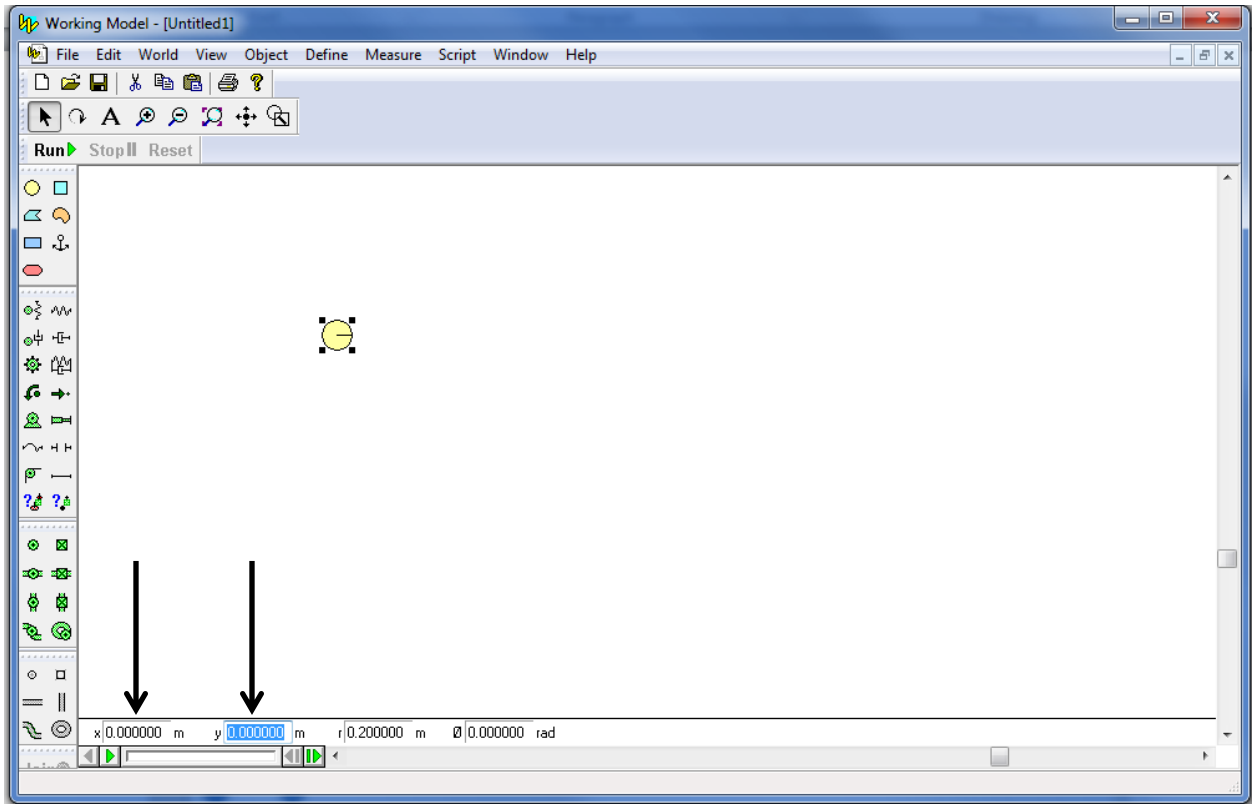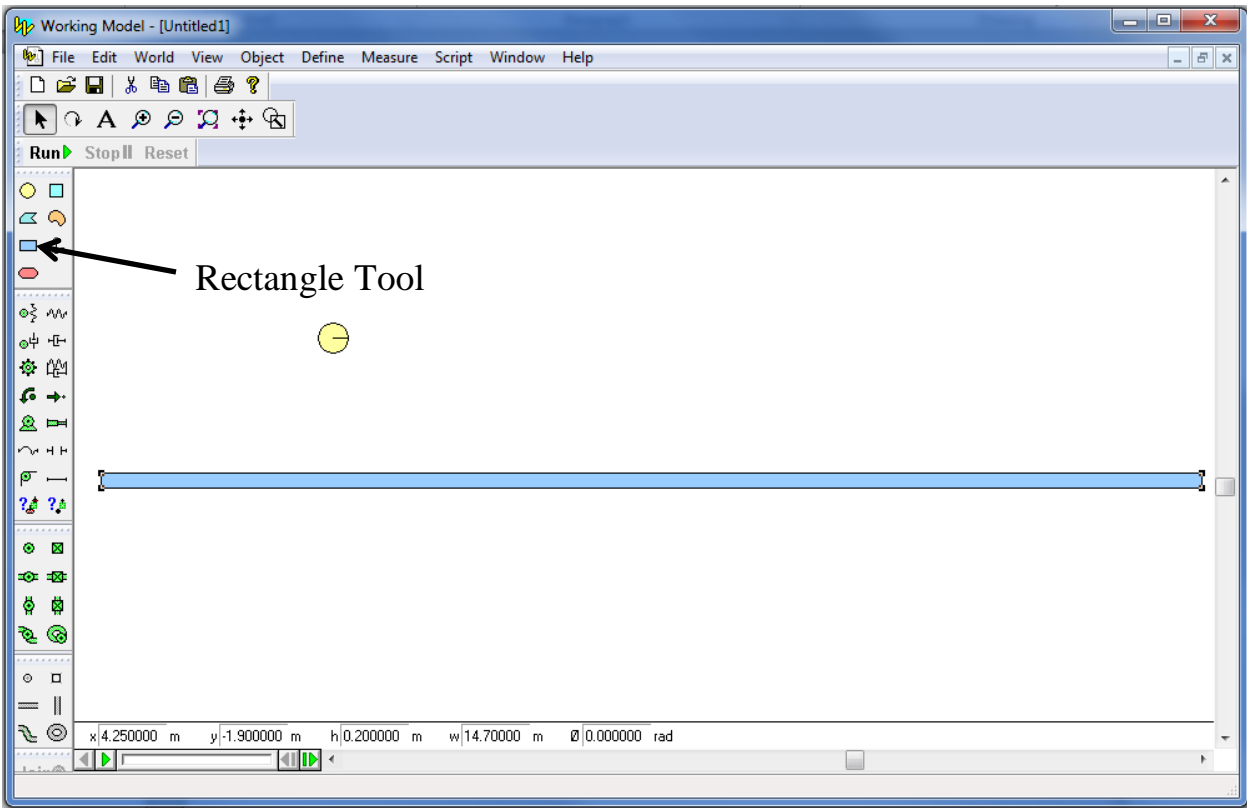

Fig. P2.45

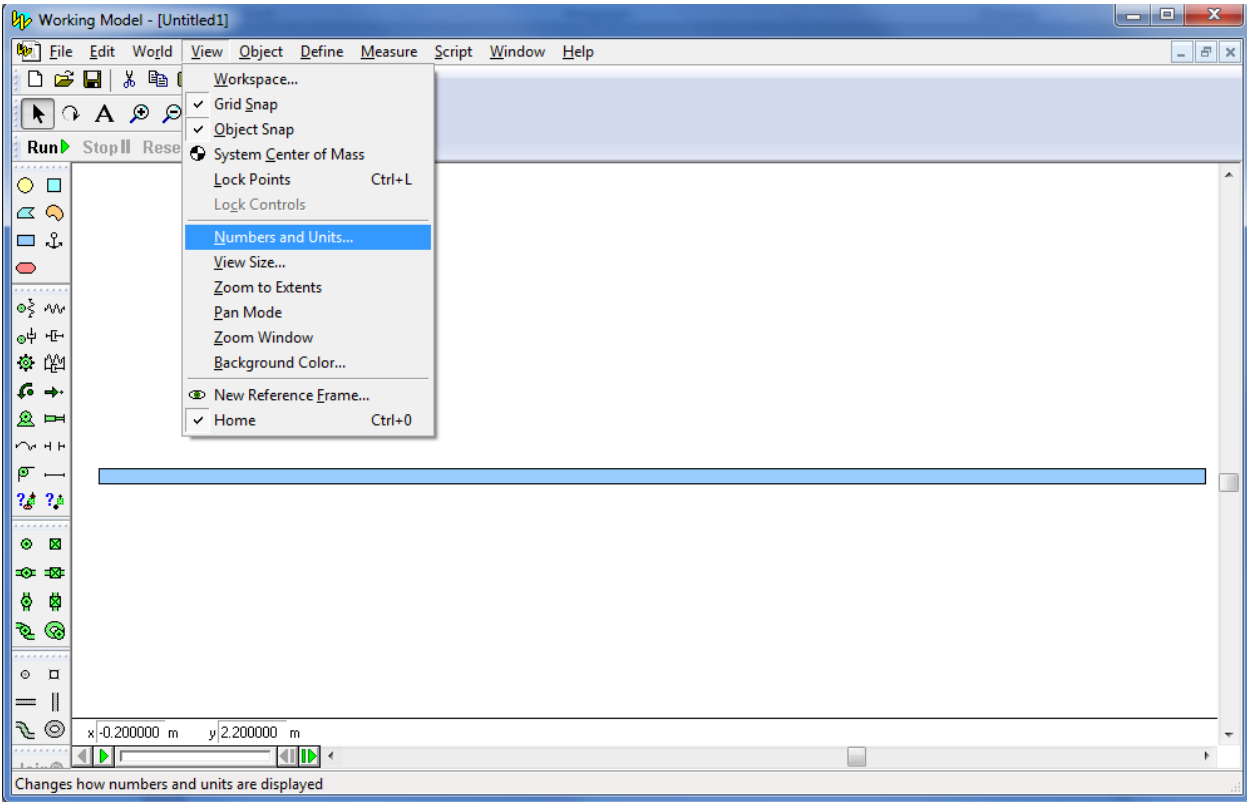Place a small circle on the Working Model window using the Circle Tool:

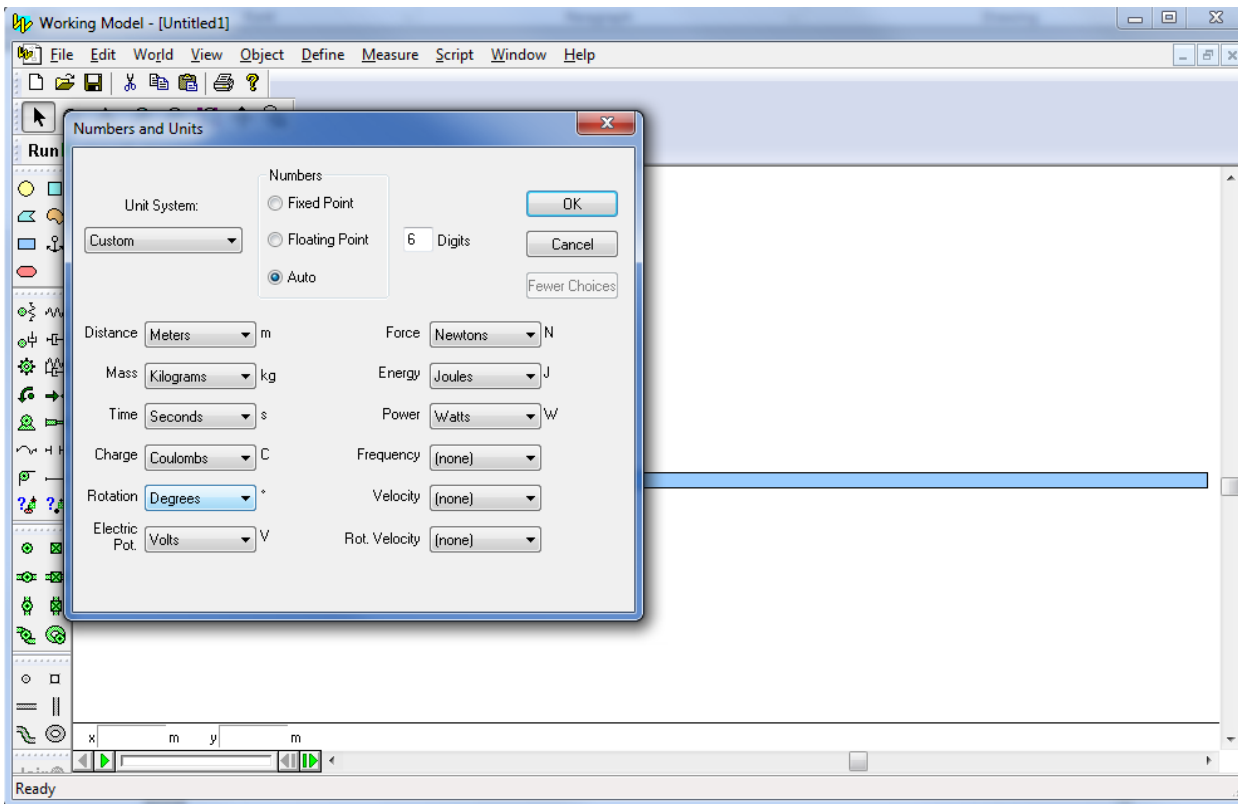Move the circle to (0,0) using the x and y location input boxes:

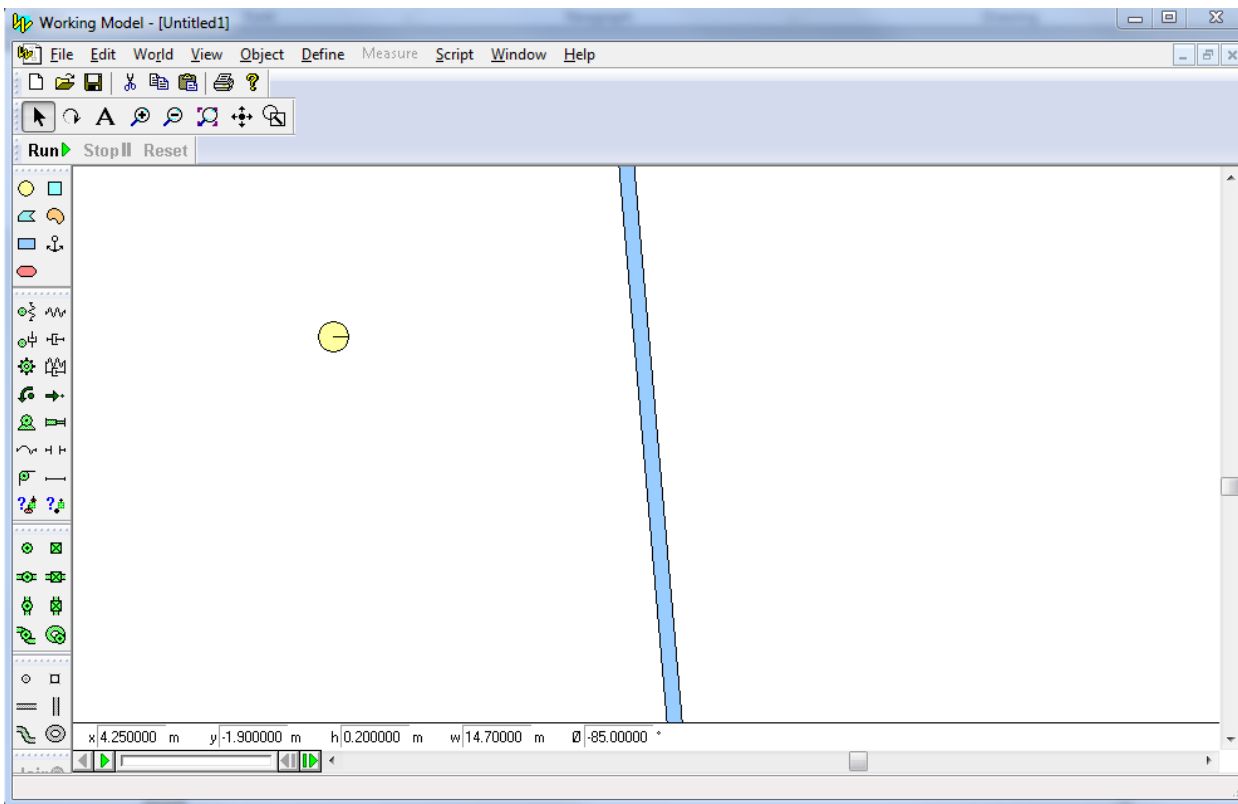Create a thin rectangle using the Rectangle Tool:

Rotate the rectangle to 5 degrees using the Angle Input box. First change the units to degrees using the View/Numbers and Units/More Choices drop-down tab:
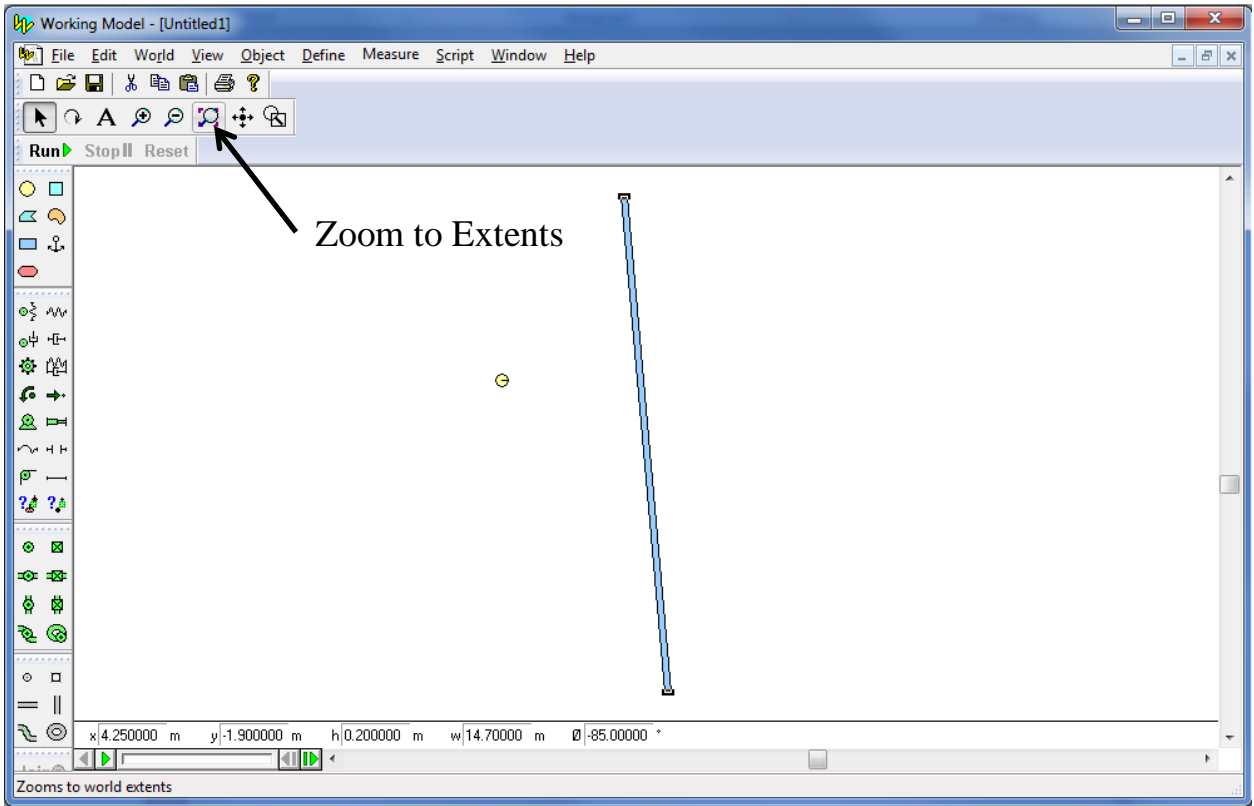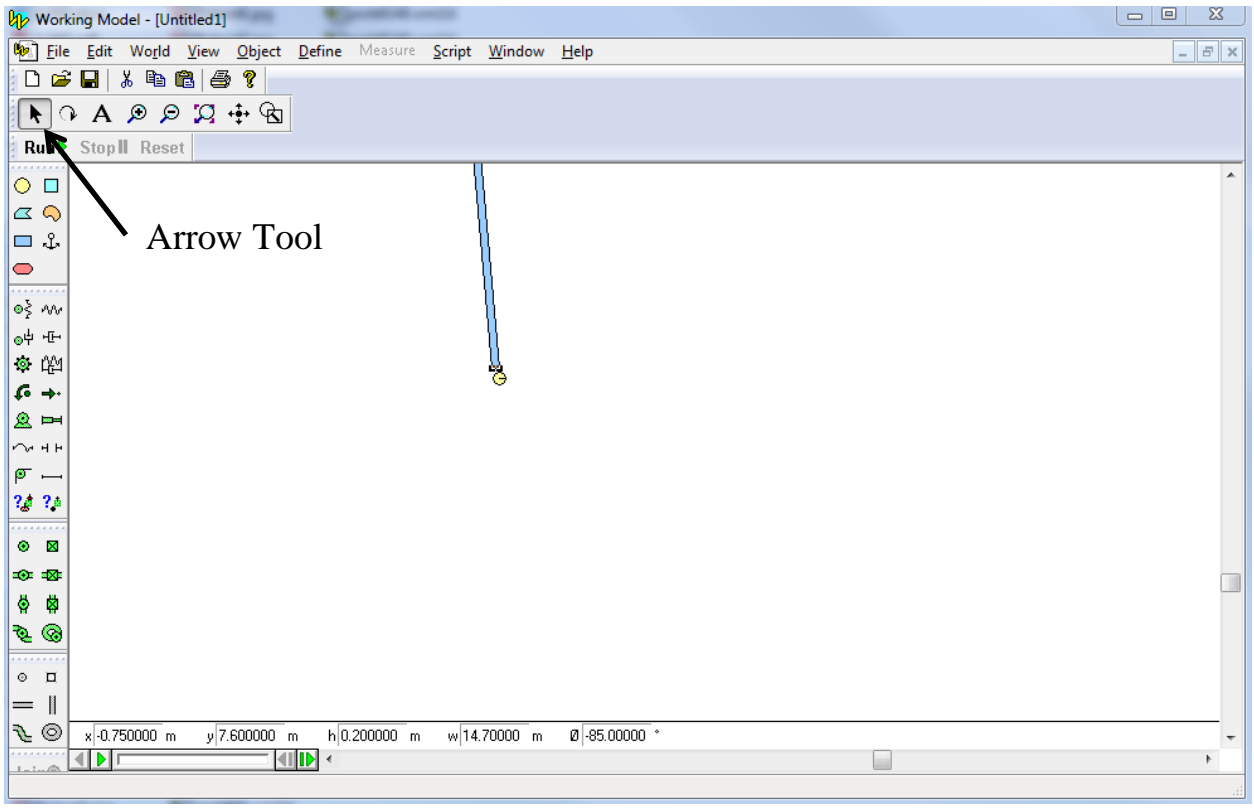
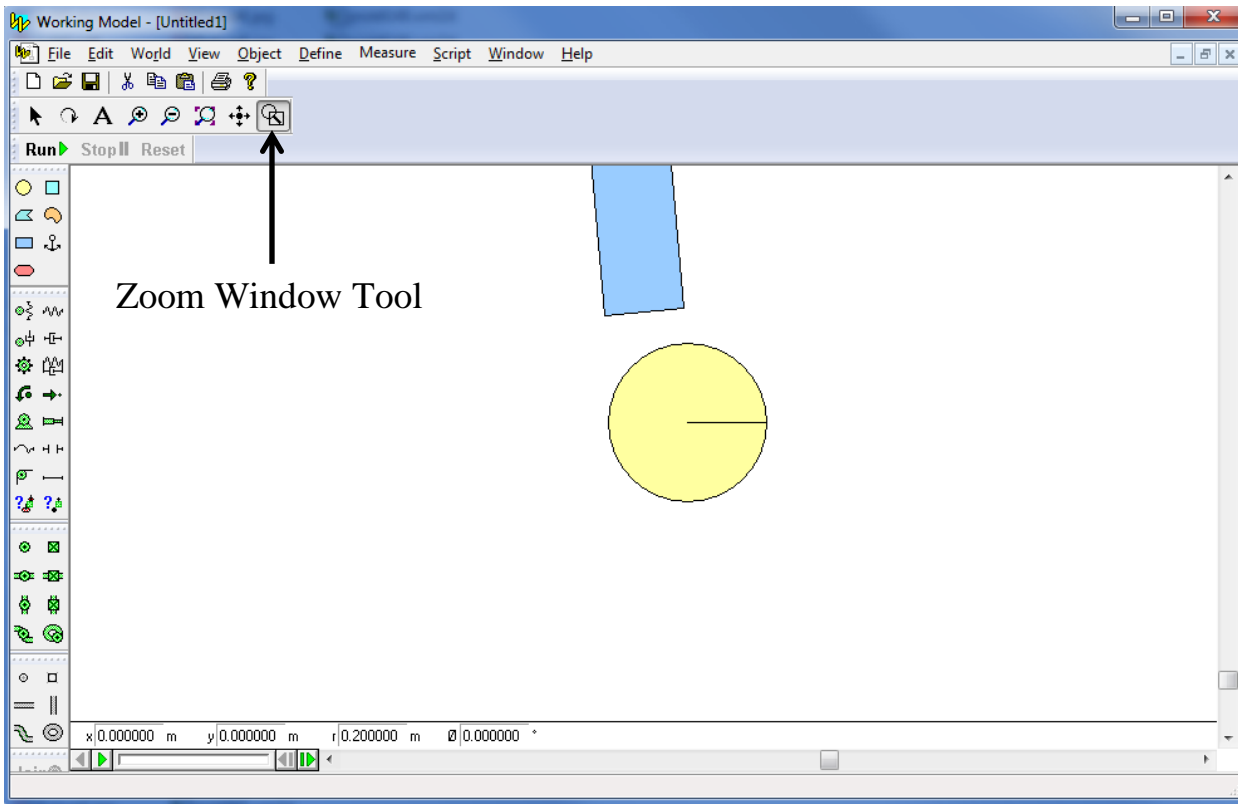Select the rectangle, and then input -85 degrees into the Angle Input box:

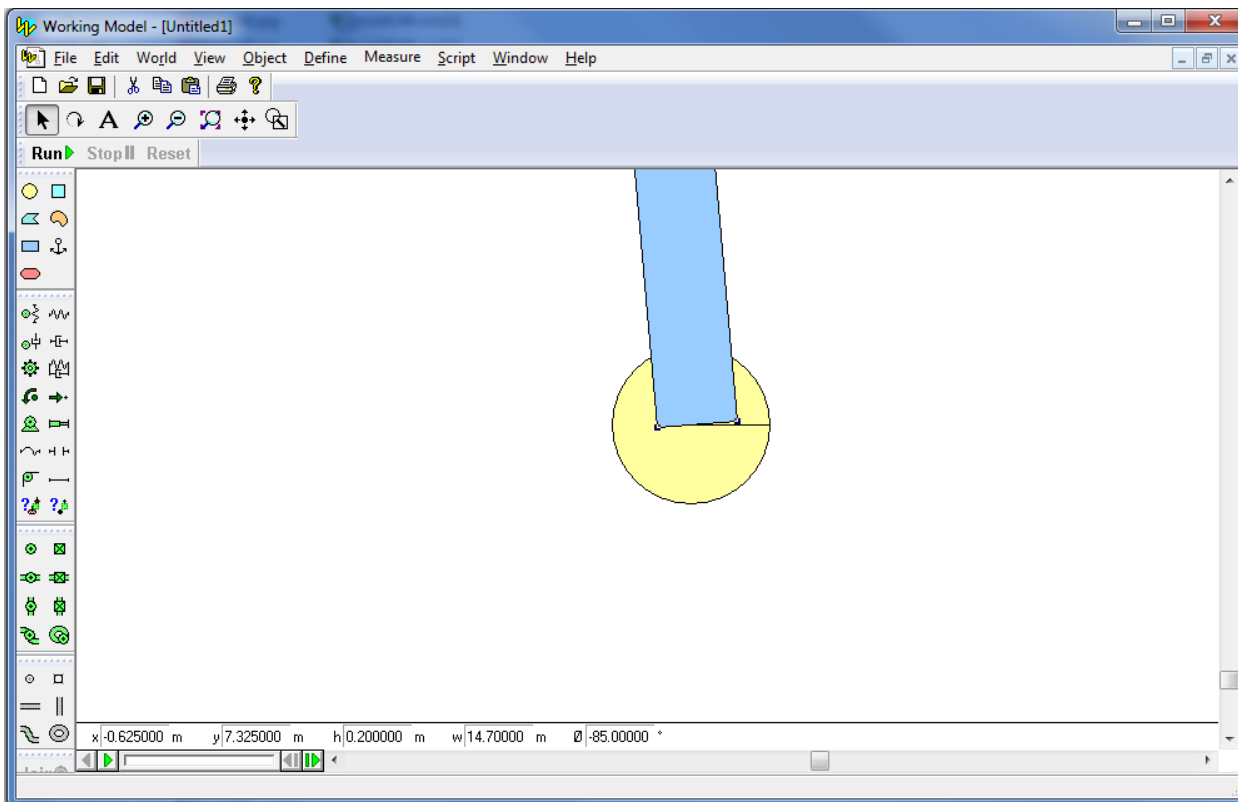Use the Zoom To Extents button to show the entire system:

Move the lower end of the rectangle to (0,0) by using the Arrow Tool. Simply depress the Arrow Tool and left-hold the rectangle to move it.
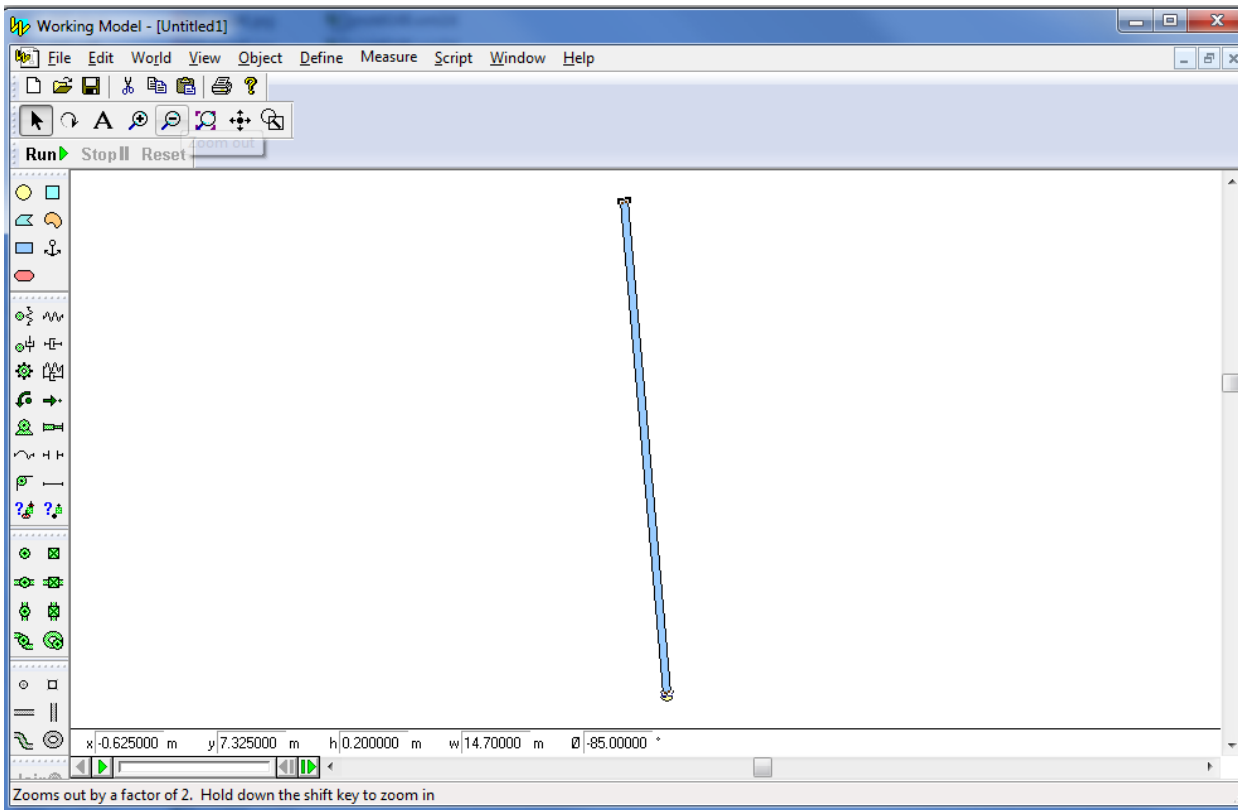

Zoom in on the circle using the Zoom Window Tool:
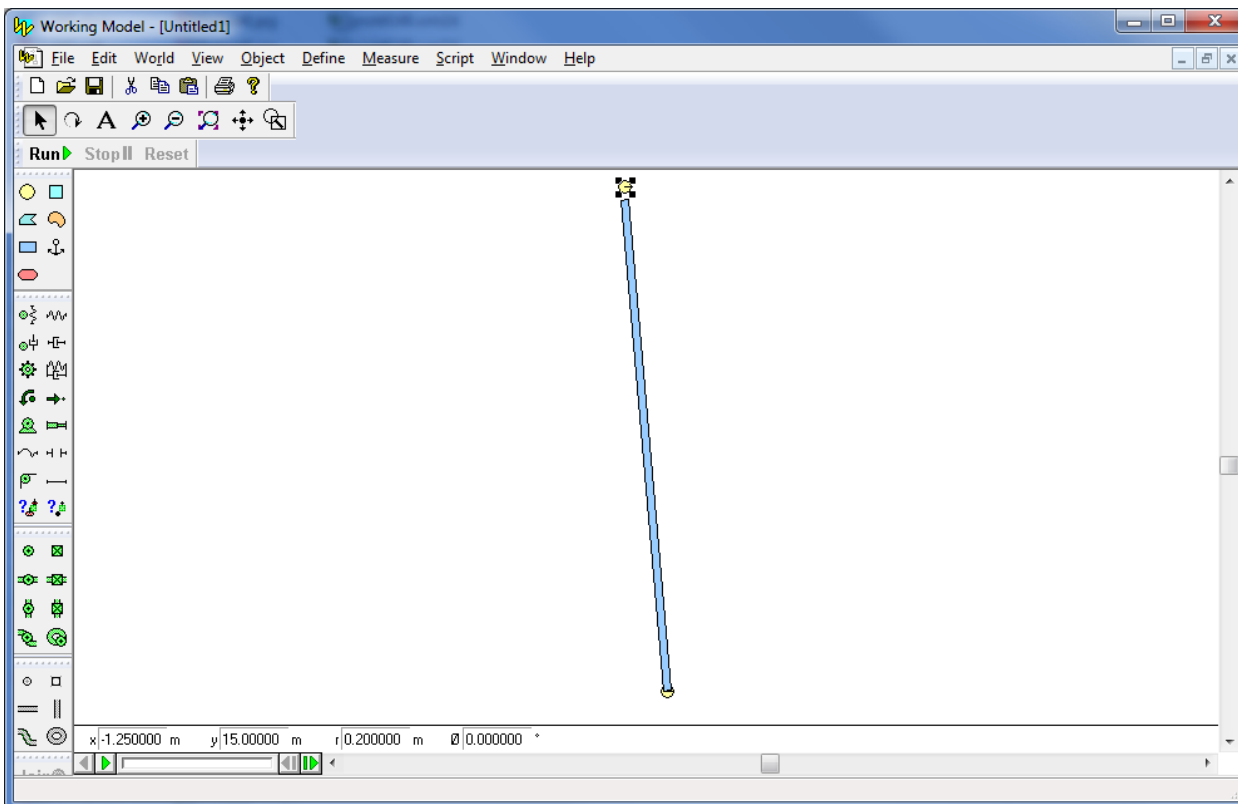
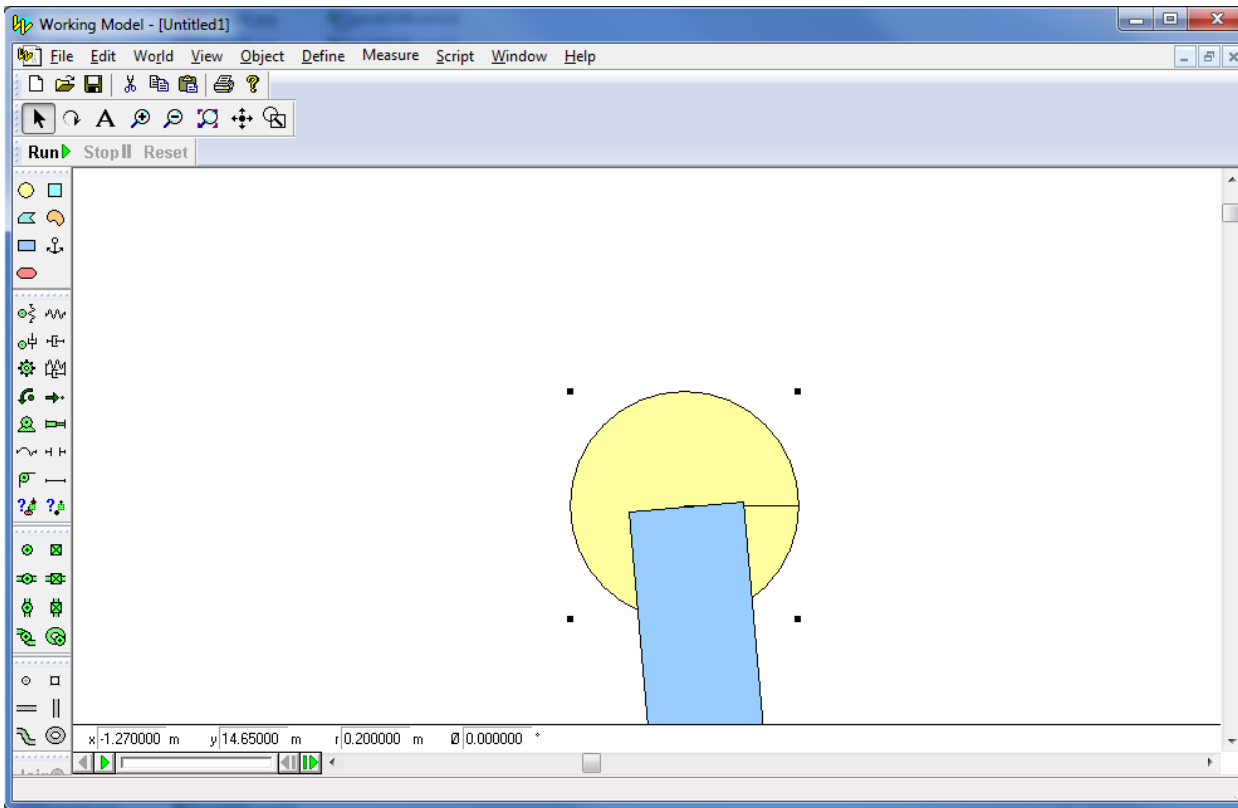Again, align the rectangle end more closely to the center of the circle using the Arrow tool:

Use the Zoom to Extent tool the see the entire system:

Select the circle using the Arrow Tool. Copy and paste it using CTRL-C/CTRL-V. Place the new circle near the upper end of the rectangle.

Zoom in on the upper circle and move it to the center of the upper end of the rectangle.

Zoom to Extents to see the entire system. Place another slender rectangle onto the window. Use the Angle Input box to place the new rectangle to -20 degrees. Place the left-hand end of the rectangle near the first circle.
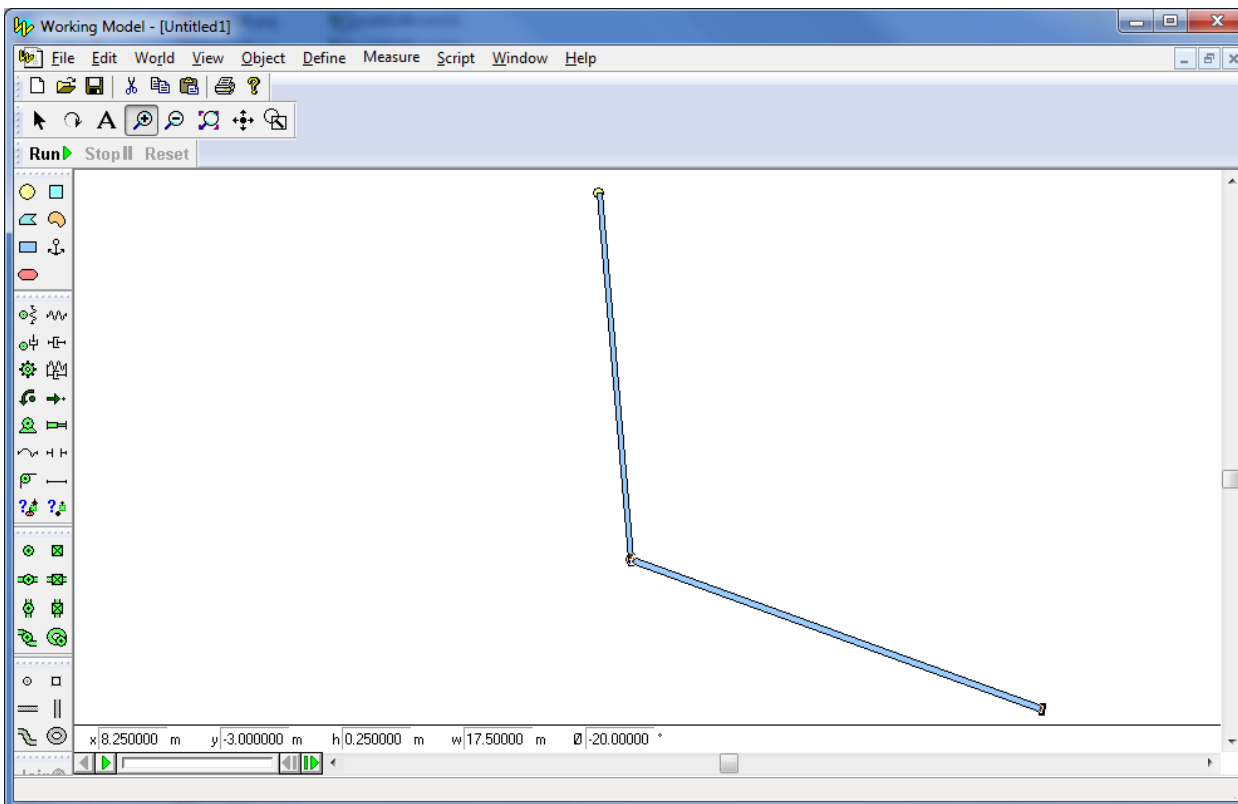

Copy and paste the original circle and place it on the center of the right-hand end of the second rectangle.
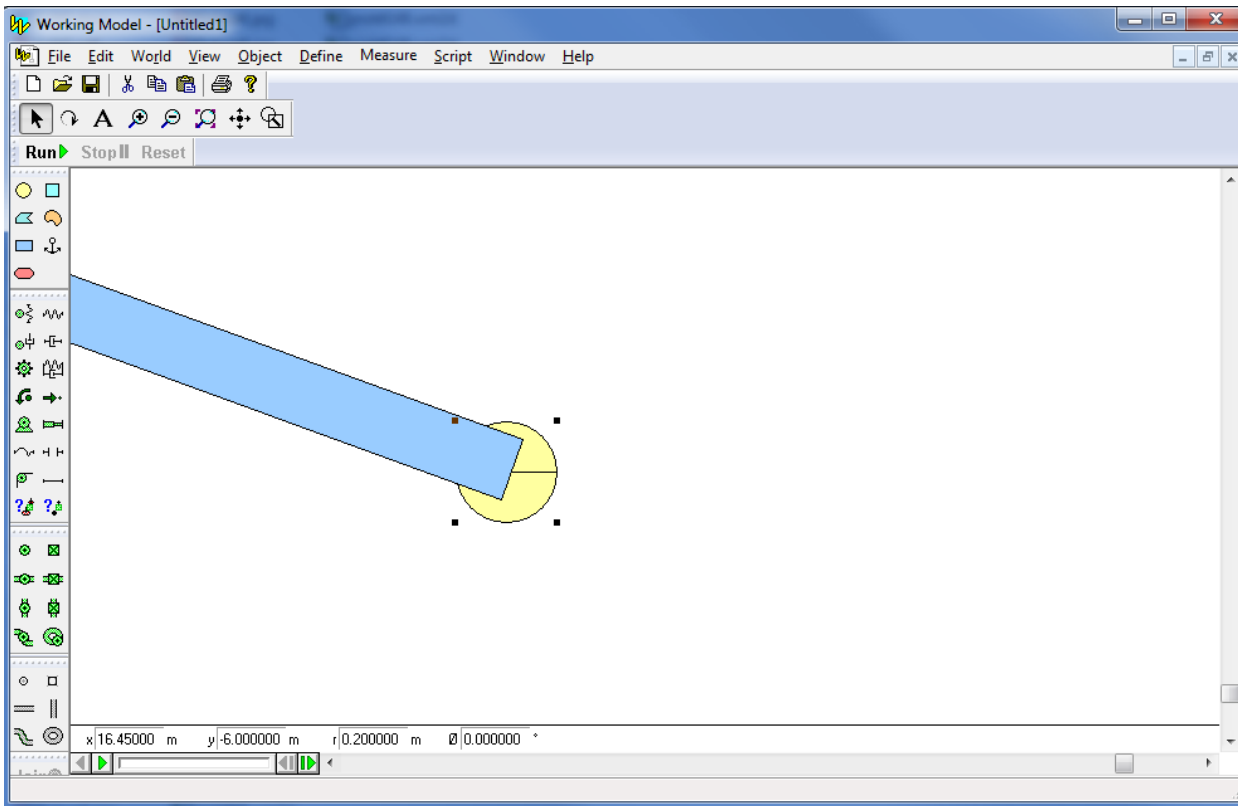
Zoom to extents, and then delete the two rectangles. These rectangles were simply used to accurately locate the three circles.
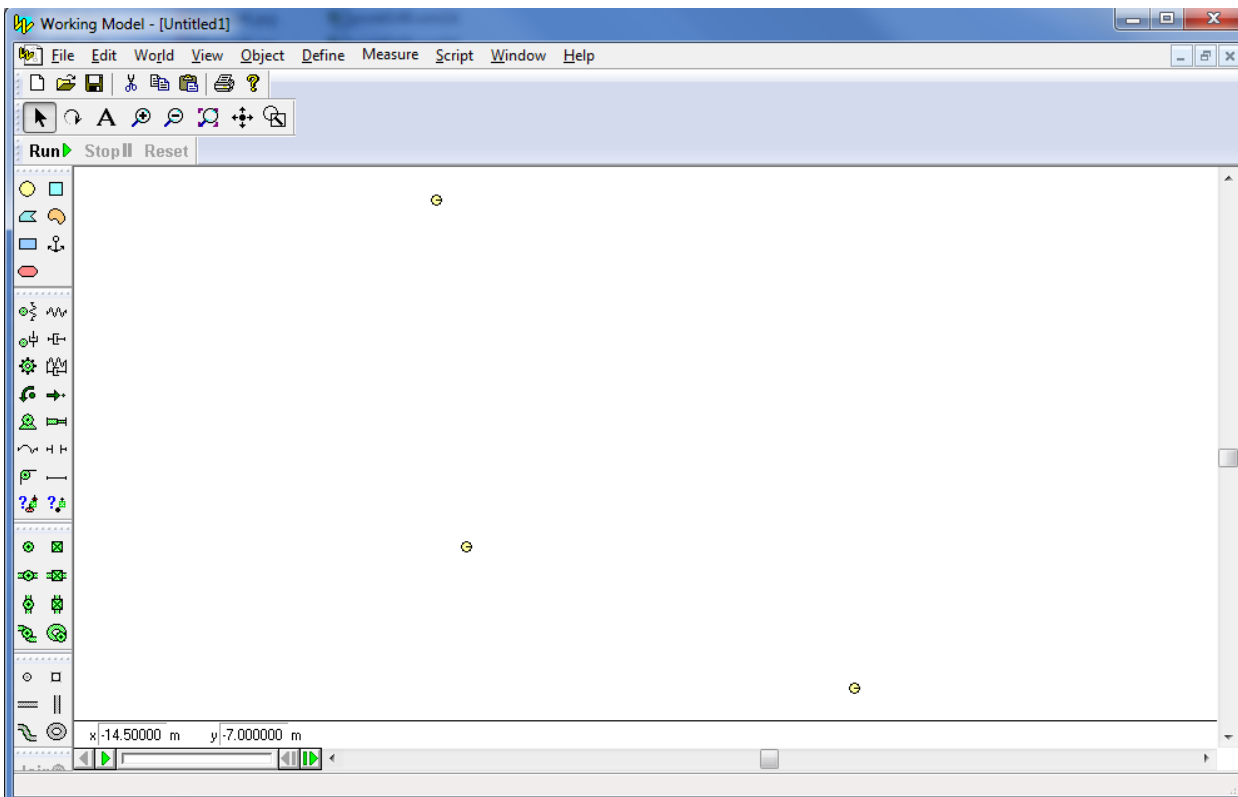

Use the Rope Tool to connect the centers of the upper circle and the circle at (0,0). Again use the Rope Tool to connect the centers of the circle at (0,0) and the lower circle. Alternatively, the Rod Tool can be used. If it is suspected that the member may be in compression, the Rod Tool must be used.
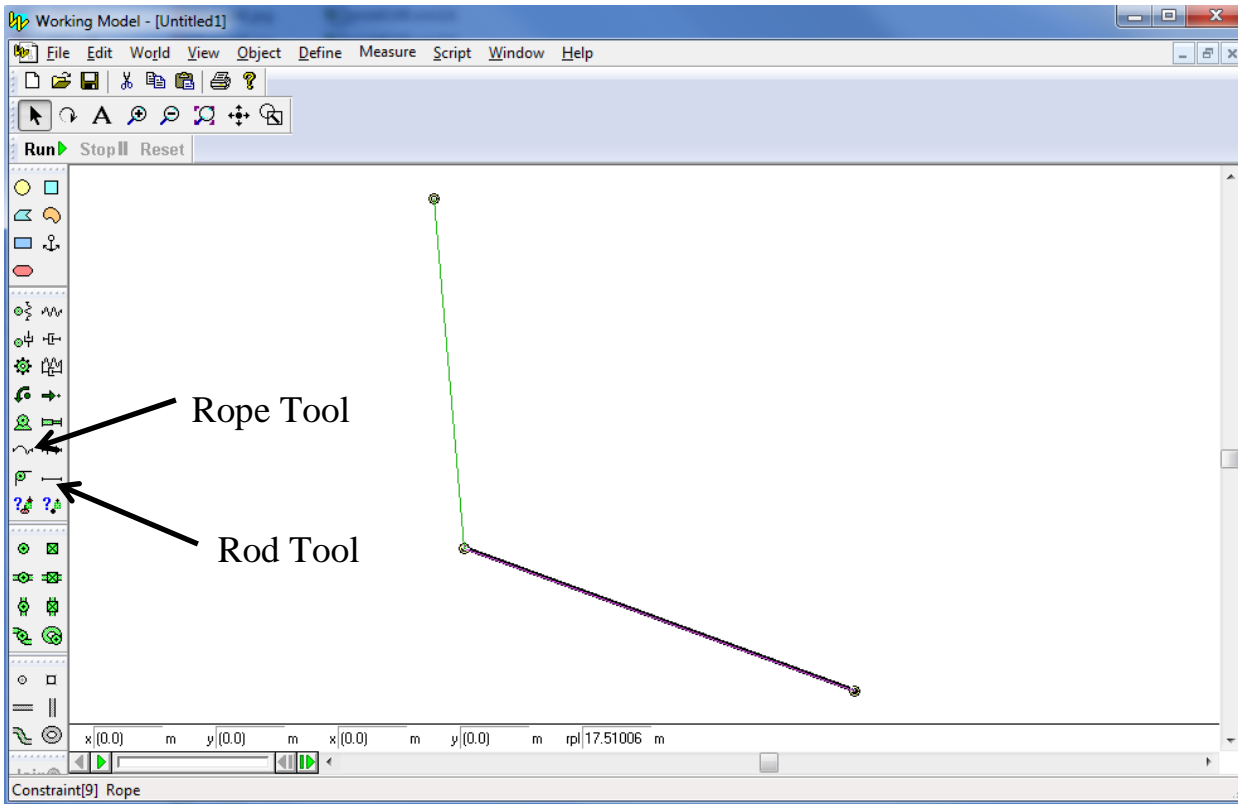
Using the Force Tool, apply the 1200 lb weight onto the center of the circle at (0,0). Use the Force Input Boxes to ensure the correct direction and magnitude in both the x and y directions.
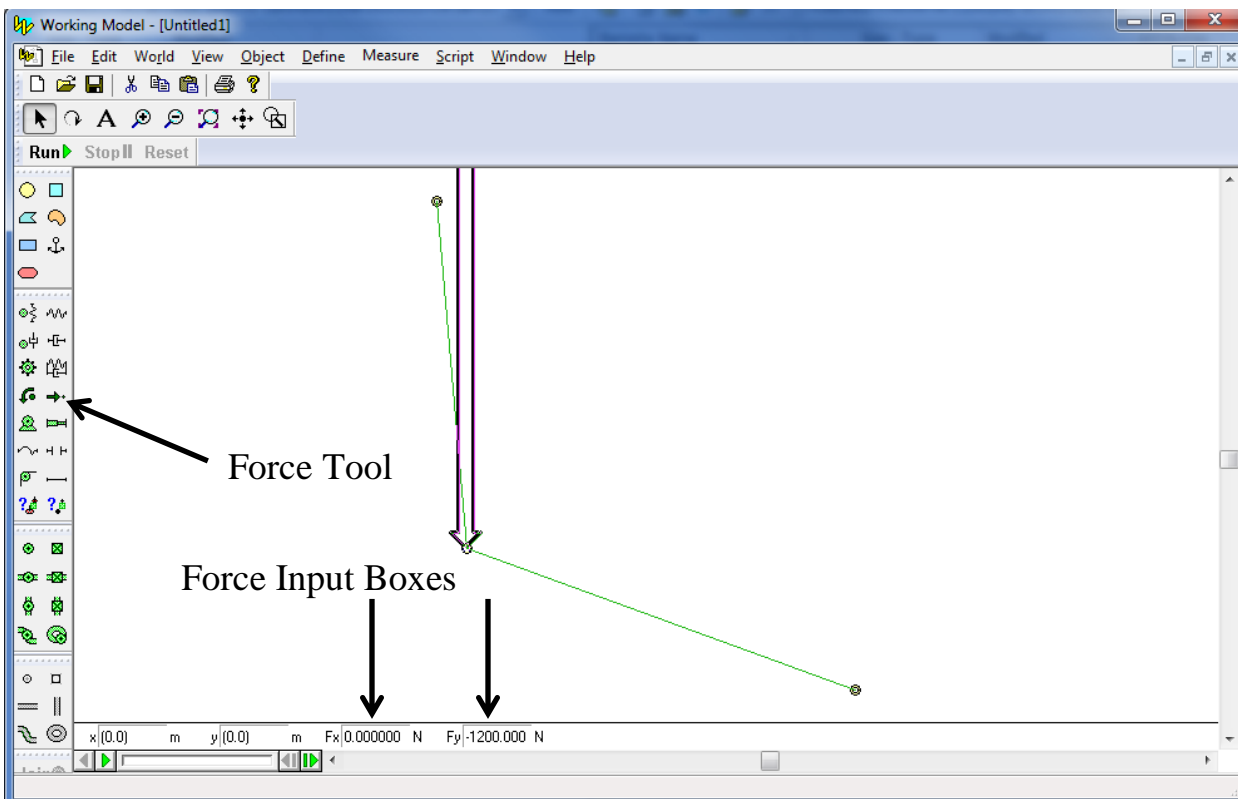

Zoom in on the upper circle and use the Anchor Tool to place an anchor on the circle. This will lock the location of the circle. Anchor the lower circle as well. Do not anchor the circle at (0,0).
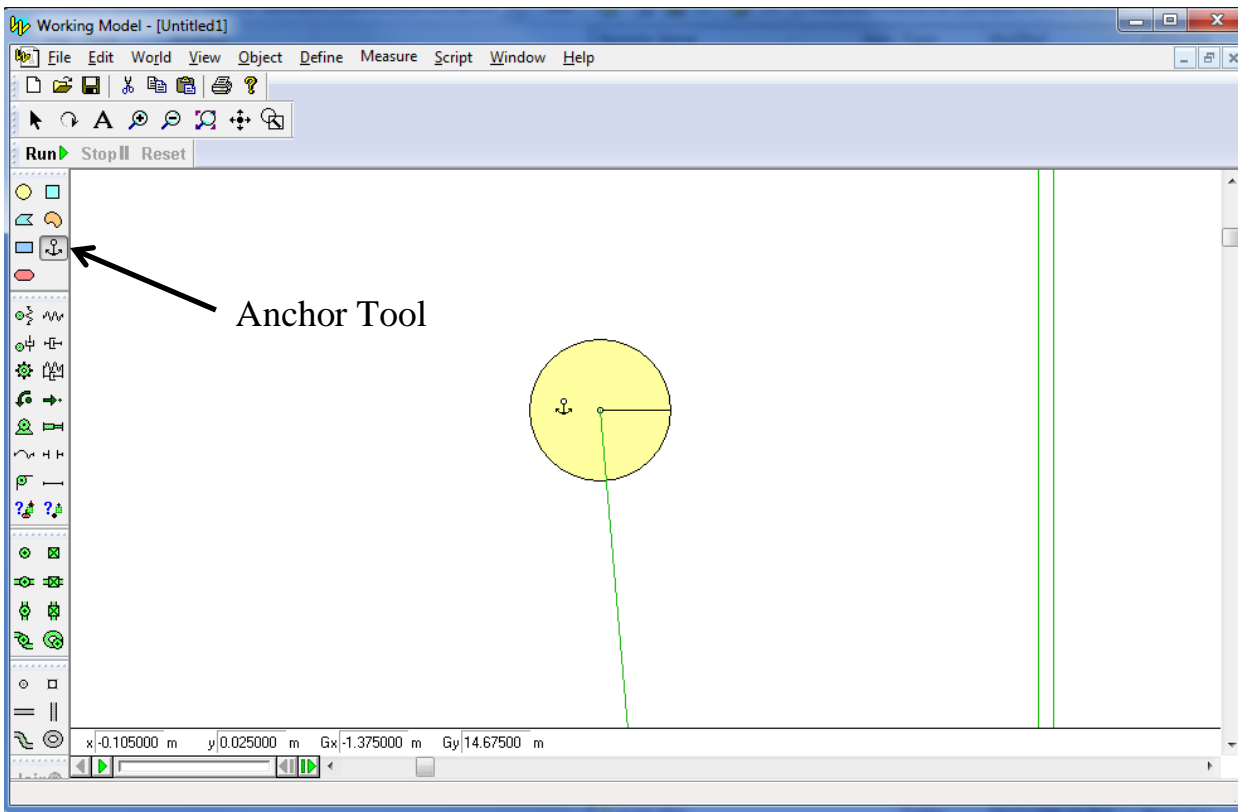
Select one of the ropes. Using the Measure drop-down menu, place a Tension measurement output box next to the rope. Do this for the other rope as well.
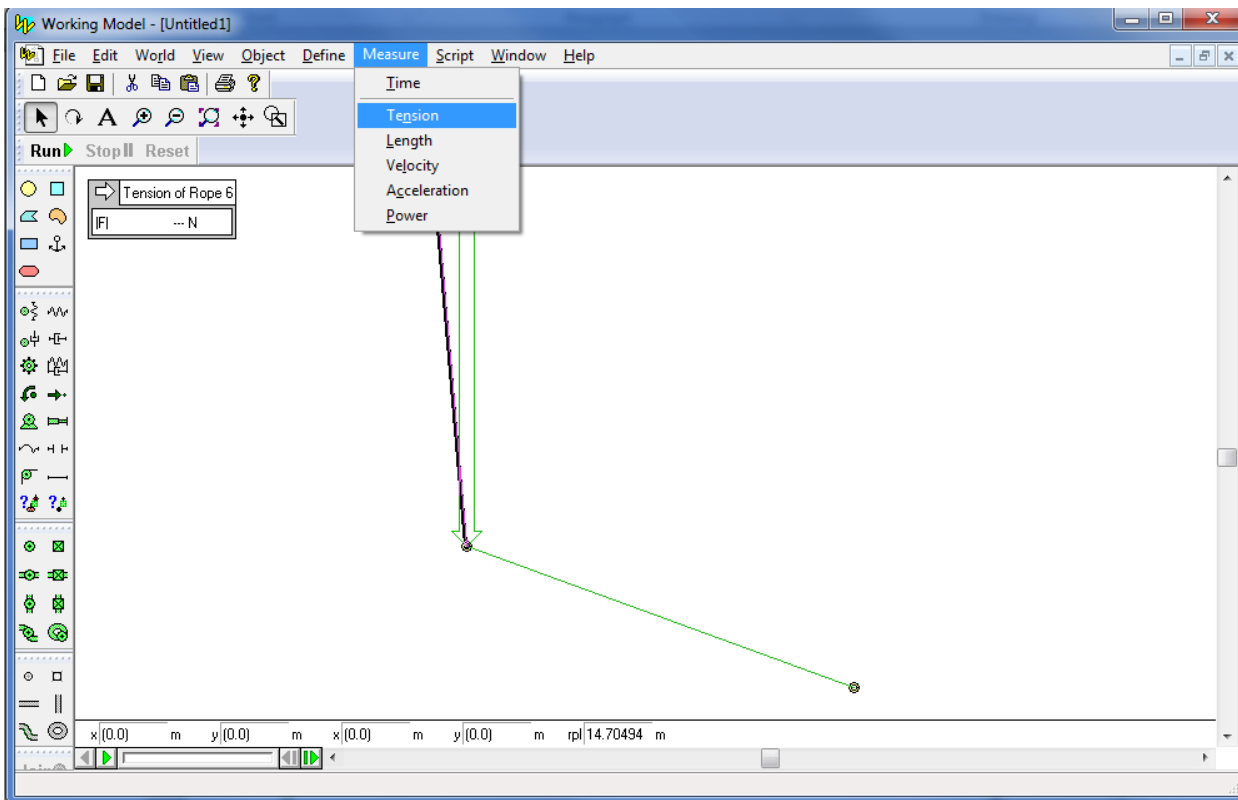
Execute the program by pressing the Run button. The tension in the two ropes will be shown in the output boxes. After running the program, press the Stop button to stop execution. The Reset button can be used to put the simulation back to the start if something is wrong.
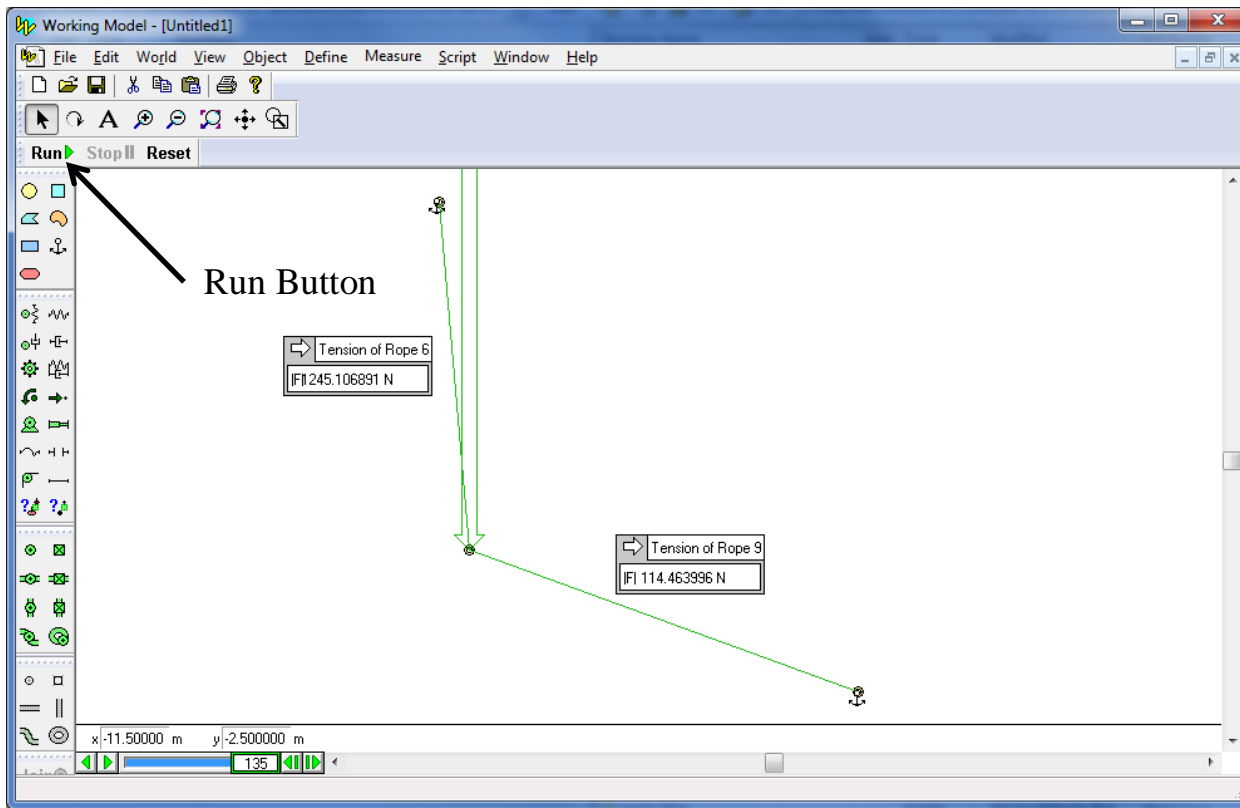
When the results of your model match those shown above, take a screenshot of the model (with numerical values showing), copy and paste it into Microsoft Word, save it as a pdf file, and submit it to the Dropbox in Pilot.