

## Trig Assignment

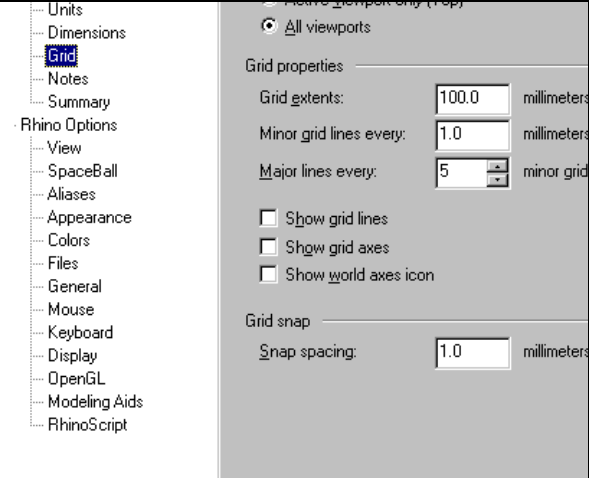
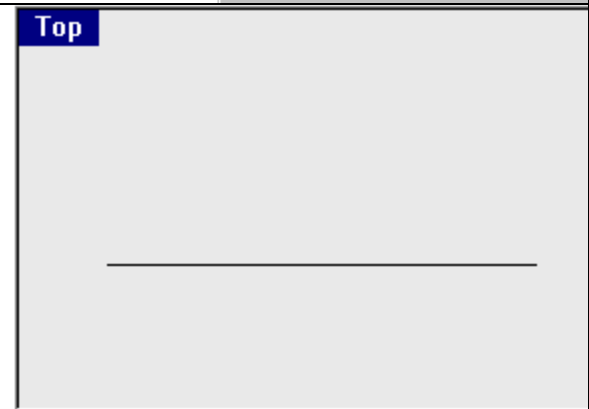
Now that you have learned to use Rhino to model a canoe, it is time to use a few Rhino commands to perform some of the 2D calculations that are in your textbook. Sadly, all of the things that I have taught you can be done without any calculation on Rhino.

“THEN WHY DID YOU MAKE US LEARN IT IF ALL OF IT CAN BE DONE ON A BLEEP-DEE-BLEEP COMPUTER?!”

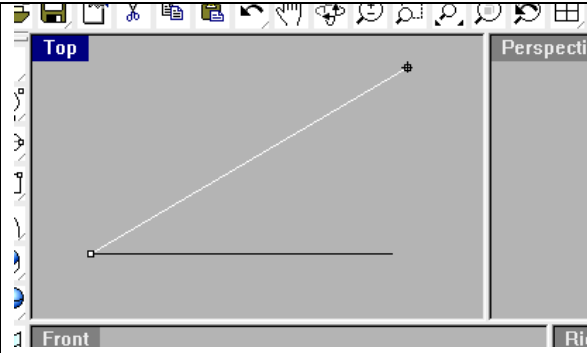
Easy, take a deep breath. We are teaching you how to **think**. Otherwise TV and Pop Culture will turn your brain to mush. And we wouldn't want that, would we? Let's get started.

Let's look at T-18 on page 264. It's a cute problem, and they want you to use tangent to solve for  $x$ . Ahhh, but we have Rhino! Now, you will need to follow a few steps to actually model this triangle in Rhino, and in all honesty, I think it is easier to use tangent. But you should decide.

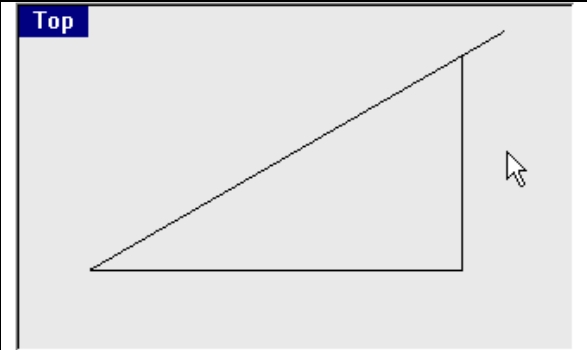
Here is the problem...

<p>Open Rhino and it will likely be in millimeters. This is OK. Type “document properties” in the command line and uncheck Show gridlines, Show grid axes, and Show world axes icon.</p>	
<p>Maximize Top view. Start with the base of the triangle. To make a 20 unit long horizontal line, type “line.” Then add type the endpoints 0,0 and 20,0.</p>	

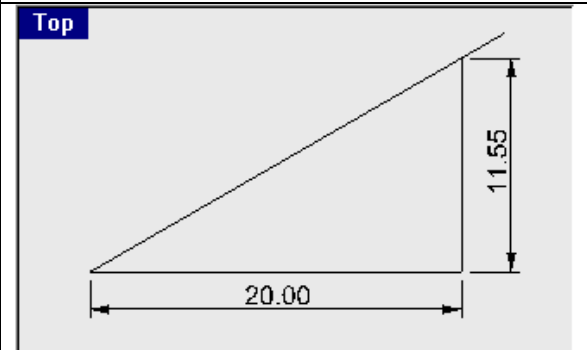
Next, type, "line" in the command line.  
 Choose "a" for aligned.  
 Read the commands and click on the appropriate endpoints of the line.  
 When prompted for the "pivot angle," type 30. You will see a white tracker line that extends at 30 degrees from your base line.  
 Click on an endpoint that overshoots your baseline.



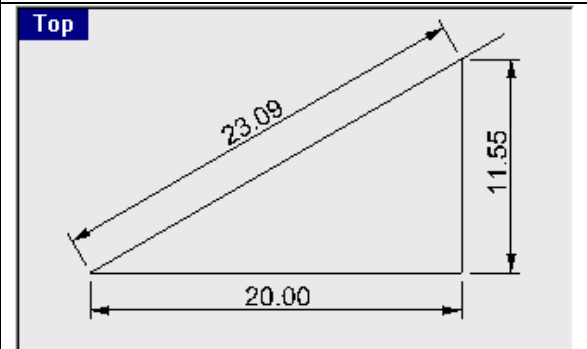
To get this last step correct, you must have OSNAP on and "int" and "end" must be checked.  
 Now type "line".  
 Click on the endpoint 20,0.  
 Move your mouse so that the crosshairs are roughly over the hypotenuse, then hold down the shift key. The shift key makes your line segment perpendicular to the x-axis.  
 When the crosshairs snap to the intersection, then left click to end the line.



To dimension the legs of the triangle, type, "dim" and follow the instructions.  
 Hey! That 11.55 was x!



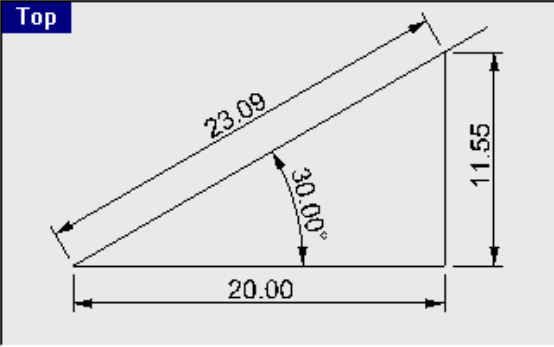
To dimension the hypotenuse, you must type, "DimAligned" because the hypotenuse is at an angle.



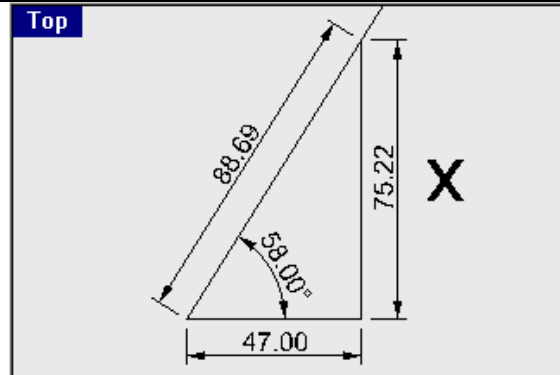
Finally, to see the angle, type, "DimAngle" and drop the angle at a convenient location.

This is the final product.

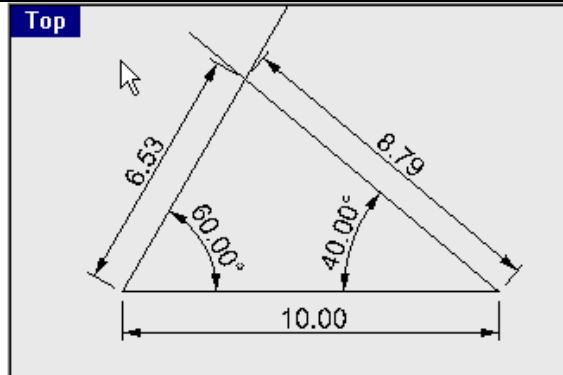
Was it worth it?



Using these commands, all of the triangles in your text can be solved for. Here is my versions of T-19c and T-111. **Check the diagrams in your book.**



Note how I used the complement to 32 degrees to draw the triangle.



Note! In order to enter the 40 degree angle properly, I had to enter -40.

Now it is time to make a Word document and do your homework in Rhino. To paste a diagram into Word, simply hit Ctrl-C and Ctrl-V.

Create a Word document that you will print that contains your name, date, a class period as well as dimensioned diagrams from Rhino of the following problems:

T-18, T-19c, T-32a, T-35d (bad book diagram) T-102a, T-102c, and T-120.

Ask for help if you need it.