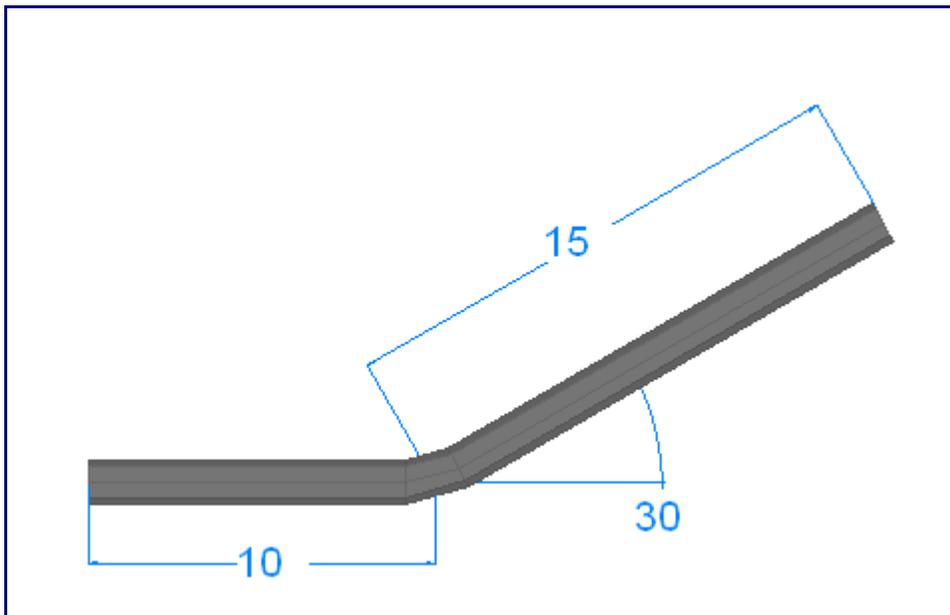


# I know the Bend Angle and Length

The Custom 3D interface is set up to move in Tri-Star directions and using a combination allows for tubing to go at an angle across the screen.

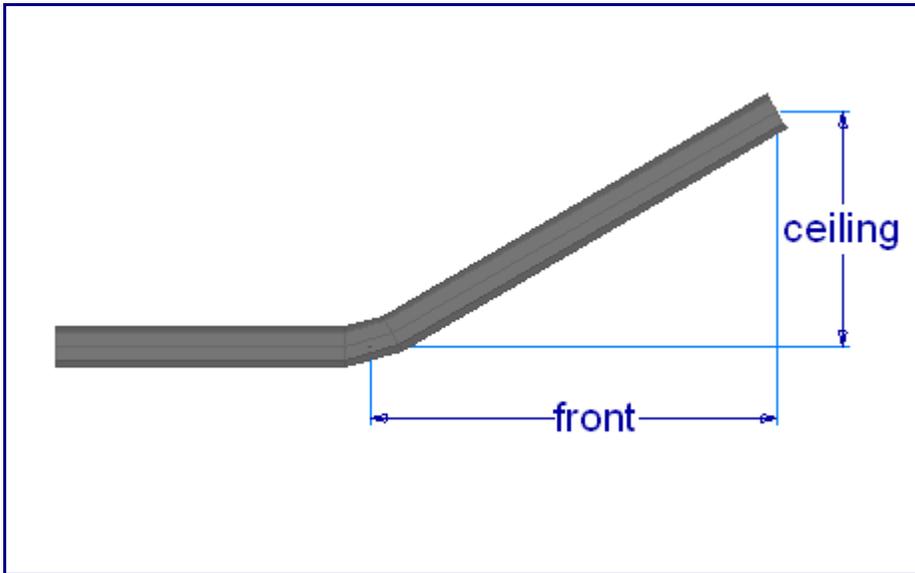
In some cases all you can get for information is the bend angle and length and you still would like to use the "Custom 3D Part" interface. No problem, we just need to learn how to use the "Trig" help function to give us the values we need.

Lets take the following part as our example:



**Note how the above part has a bend angle of 30 degrees with that leg having (a too apex) length of 15.**

As you may now know, the "Custom 3D Part" interface is looking for a rise and run style of dimension for this leg.



We need to convert the 30 degrees and 15 inch leg over to a width and height measurements. To do this we use the "Trig" function under the "Help" pull-down.

The screenshot shows a window titled "Trigonometry" with a right-angled triangle. The vertical side is labeled "A", the horizontal side is "B", and the hypotenuse is "C". The bottom-left corner is "a", the bottom-right is "b", and the top is "c". The angle at "b" is labeled "1." and the angle at "c" is labeled "2.". On the right, there are input fields for "Lengths" (A: 7.5, B: 12.99, C: 15) and "Angles" (a: 90, b: 30, c: 60). Blue circles highlight the "b" and "c" labels in the triangle, and blue arrows point from these circles to the "b" and "c" input fields in the "Angles" section.

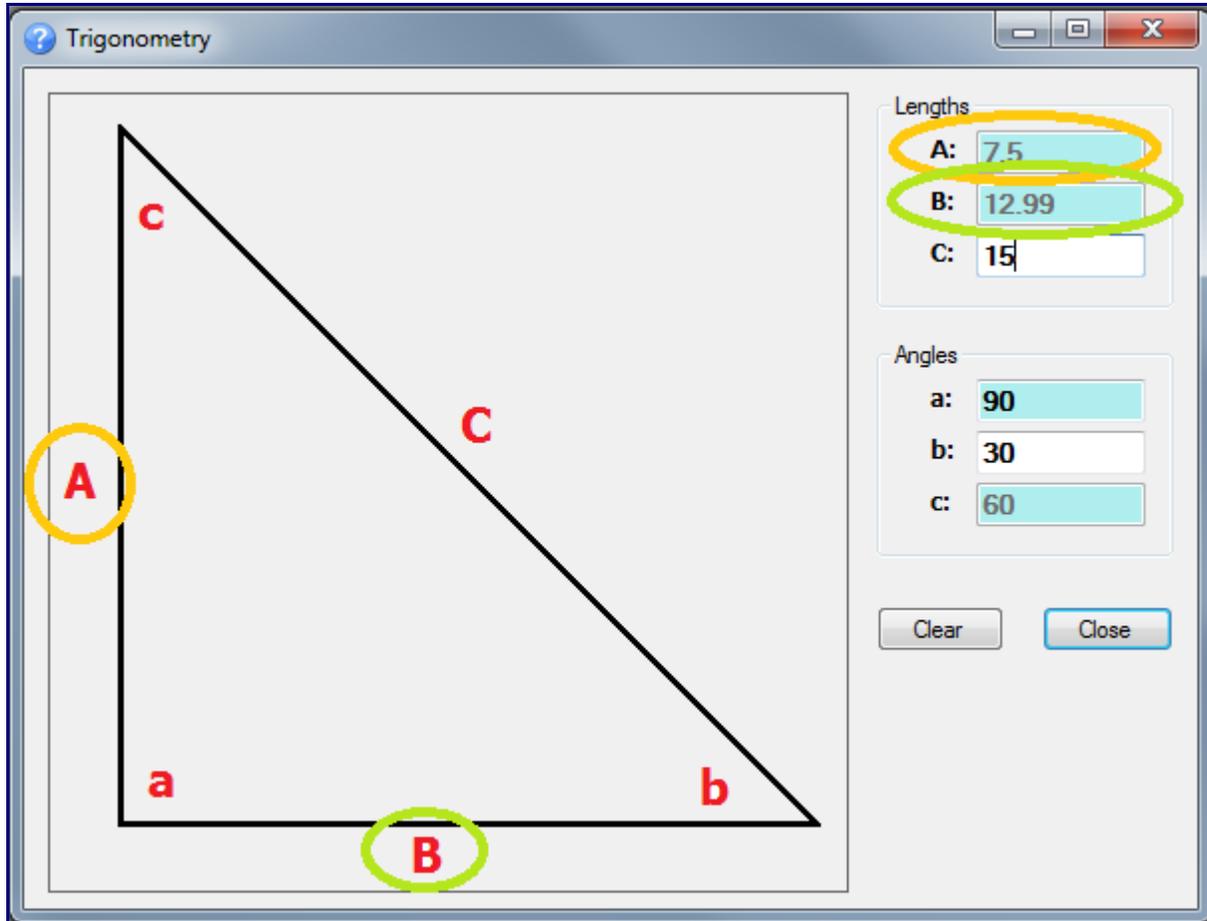
You will find in the above picture a triangle with the corners labeled as "a", "b" & "c" and the edges labeled as "A", "B", "C".

We know our angle is 30 degrees, so we filled in the little "b" field as 30 first. Please note that "a" &

"b" will always add up to 90 degrees.

We also know our leg length is 15. We entered a **15** into the upper "C" field. This is known in the math world as our hypotenuse.

Once these values are entered we will find our rise and run values. In this case we have **7.5** for "A" and **12.99** for "B".



We finish up by going back to our Custom 3D part and entering our new found values into the appropriate fields.

Custom 3D Part - 1

Die & Material | Part Details | Settings | Tools | Manuf. Warning | Display

**Select Material:**  
 1.75 DOM  Diameter: 1.75  
 Wall Thickness: 0.13  
 Weight: 0.00

**Select Die:**  
 3.0  CLR: 3.00  
 Custom CLR  Calibrated CLR: 3.90  
 Bend Location Offset: 0.00

Display Spring Angle

**Number of Bends:**  
 1   
 Refresh on Keystroke    
 Verification Points  
 Display Dimensions  
 Use 3D Angle Interface

to left 0    to ceiling 7.5    to front 12.99  
 to back 0    to floor 0    to right 0

Order	Bend	Location	Rotation	Angle	Spring Angle	CLR	Bend Length	Orientation
1	1	13	0	59.9993	59.9993	3	3	From Start

Die: 3.0    Cut Length: 29  
 Material: 1.75 DOM    Part Weight: 0

Double check your values by looking at the "angle" up in the results chart.