Subject: Holy Trigonometry!
Posted by Duncan McBride on Sun, 02 May 2004 23:44:18 GMT
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I'm thinking, if the flat kits for the midhorns come with all the angles cut, they're a bargain. The wood is still damp where I was mopping up glue, I hope I got it all. I was going to miter the edges and actually found a formula to get the angle, but it worked out easier to butt the vertical pieces inside. So far so good.

Subject: Re: Holy Trigonometry!
Posted by Bill Martinelli on Mon, 03 May 2004 00:11:35 GMT
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Great job ! challenging isnt it. I think it's best to assemble the vertical pieces inside like you have.Bill

Subject: Re: Holy Trigonometry!
Posted by Wayne Parham on Mon, 03 May 2004 08:20:16 GMT
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Beautiful job! And I love that cat!And yes, the horn kits have the angles cut.

Subject: You don't need the math
Posted by Adrian Mack on Mon, 03 May 2004 08:36:47 GMT
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No need to use formula to get angle - use instructions in the "Edgar Midrange Horn" article, download it at http://www.volvotreter.de/dl-section.htm The instructions are for tractrix, but you use the same method for the conical. By using the offcut 'wedges' - you can cut it to the exact angle needed without even touching a calculator or working the math. Makes assembly a real piece of cake too if you make the jig outlined in that document. The wedges are attached to the horn sides and then cut and it forms the angle needed right then and there. Works great for me.

Subject: Great link - and there's always Dr. Math
Posted by Duncan McBride on Mon, 03 May 2004 12:30:20 GMT
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Here's a link to the best discussion I could find. I plugged the formula at the end into an Excel worksheet and came up with about 100 degrees for the angle where the sides meet. That's just what I came up with when I custom-fit the sides into the top and bottom. I imagine if I could end up with perfectly mitered edges and beveled front edges, the horn could be assembled by placing all the pieces in a pyramid and a little piece of tape on each edge would hold it perfectly until the glue dried. Right. My reality-based approach involves deck screws and wood filler.
http://mathforum.org/library/drmath/view/61296.html

Subject: Re: Great link - and there's always Dr. Math
Posted by Wayne Parham on Mon, 03 May 2004 15:36:12 GMT
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I think the carpenter has to adjust the saw with some sort of device. I don't know if that device is calibrated in degrees or if it is trued by some sort of straight-edge. If the latter, then it seems like the wedge suggested in Edgar's article might be a good idea. If a numeric figure is required, I guess it's calculator time.I remember seeing an angle dial on some table saws, but I seem to recall that it is not accurately calibrated. Seems like I was told that you were better off using a more accurate guide if the angle was important. But this is not my field of expertise, so I'll defer that one to the cabinetmakers of the group.

Subject: Re: Great link - and there's always Dr. Math
Posted by Adrian Mack on Sat, 08 May 2004 22:34:10 GMT
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I see, you could do it with the math I guess - is the angle constant along the whole edge? On the tractrix horns I did the angle did vary considerably, the conicals appeared to have a bit of a varying angle too on the ones I built. Thats really why I use the 'wedge' method, so the exact angle is achieved along the whole length plus I don't need to setup the saw for bevel cuts! By the way , nice work on the horn, looks cool.

Subject: Re: Great link - and there's always Dr. Math
Posted by Duncan McBride on Sun, 09 May 2004 02:07:17 GMT
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Hey, thanks. They look better in the pictures than in person, but I'm looking forward to hearing them. If I hadn't been so impatient, I'd be ordering the kits now, but it's been interesting so far.You're right, the angle of the sides would vary on the tractrix. On a straight sided conical the angle should be the same all the way. I was able to cut the verticals along each edge and when I propped up the bottom piece to a reasonable angle I could just set the sides in place and put the top on, and it would sit there like a house of cards. I looked all around and all the edges were flush. Neat. I glued and screwed it together and the next day the tops and bottoms had warped inward about 1/4" at the center. I had to build a little brace with a threaded rod to push them out when I glued the horn to the cabinet pieces. Those kits are sounding better all the time, but I'm learning.

Closeup of brace