

Persona | Projects

(Holed Star)

3/3 | Monday

Portfolio of designs

CAD file

CAD drawing

G-code

Video of NC simulation

Simulation

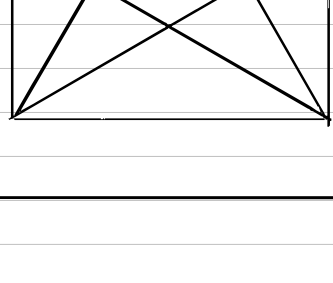
be sure to write out dimensions of stock material

try w/ stock set

WCS

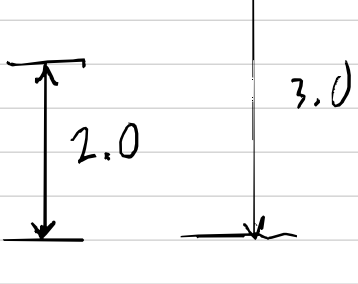
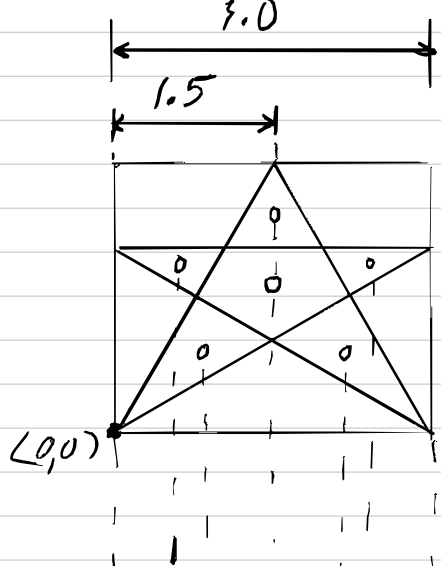
in #5

up



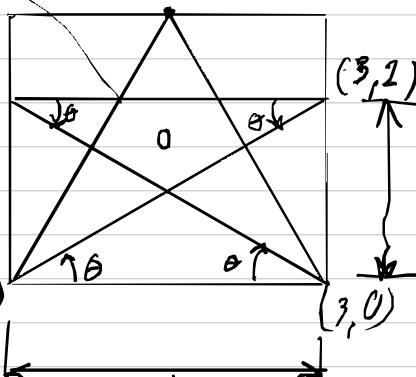
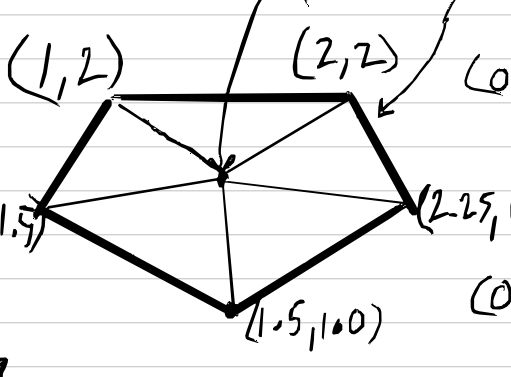
3/4 | Tuesday

Dimensioning out part



$$\frac{1.5 + 2 + 2 + 1.5 + 1.0}{5} = 1.6$$

y coord is avg. of pentagon points.



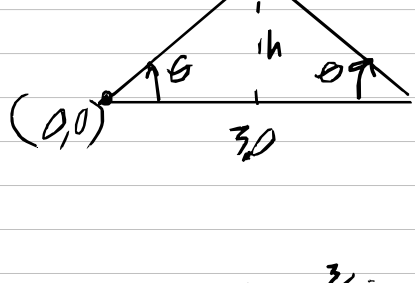
$$\tan \theta = \frac{2}{3}$$

$$\theta = \tan^{-1}(\frac{2}{3})$$

$$= 33.69^\circ$$

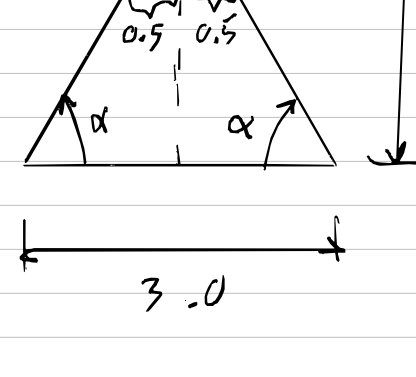
$$\tan \theta = \frac{h}{1.5} = \frac{2}{3}$$

$$h = 1.0$$



$$\tan \alpha = \frac{3}{1.5} = 2$$

$$\alpha = 63.4349^\circ$$



$$\tan \alpha = \frac{1}{1.5} = \frac{2}{3}$$

$$s = \frac{2}{\tan \alpha}$$

$$= 1$$

$$\tan \alpha = \frac{1}{1.5} = \frac{2}{3}$$

$$s = \frac{2}{\tan \alpha}$$

$$= 1$$

Next

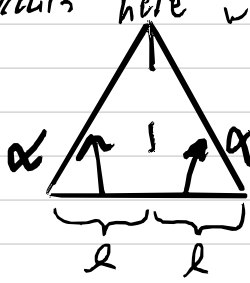
Figure out remaining coord.

Calculate hole coord.

Triangle

Also occurs

here w/ different height

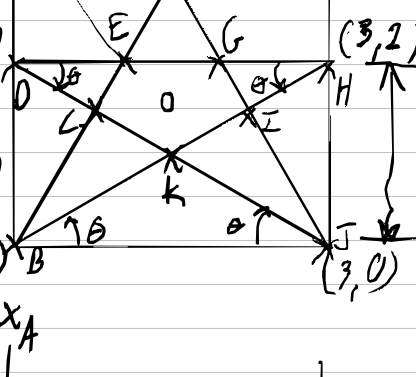
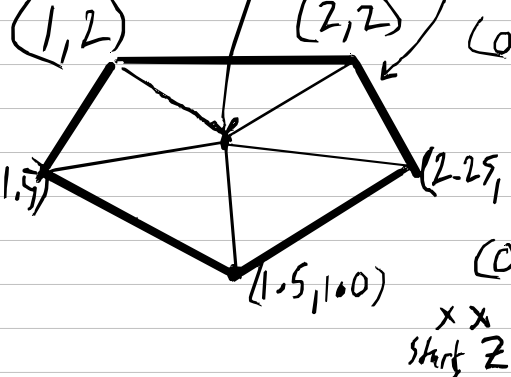


$$\alpha \approx 63.4349^\circ$$

$$\tan \alpha = \frac{1.5}{x}$$

$$x = \frac{1.5}{\tan \alpha} = 0.75$$

G90	X	Y	
Start	-1.0	-1.0	
A	0.0	-1.0	
B	0.0	0.0	
C	0.75	1.5	
D	0	2	
E	1.0	2.0	
F	1.5	3	
G	2.0	2.0	
H	3.0	2.0	
I	2.25	1.5	
J	3.0	0.0	
K	1.5	1.0	
Z	-1.5	-1.0	
End	-1.0	-1.0	



$$K(1.5, 1.0) \quad B(0, 0)$$

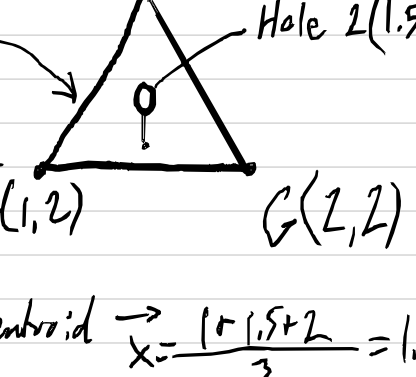
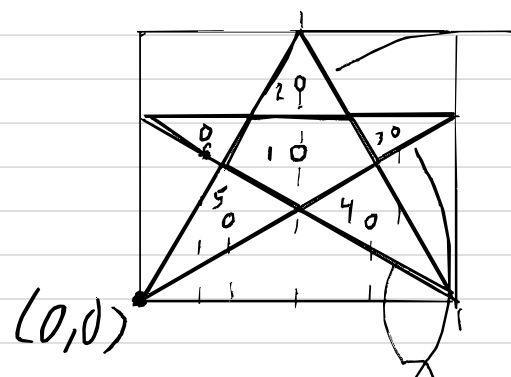
$$m = \frac{1.0 - 0}{1.5 - 0} = \frac{1}{1.5} = \frac{1}{1.5} = \frac{2}{3}$$

$$y = \frac{2}{3}x \rightarrow (?, -1.0)$$

$$-1.0 = \frac{2}{3}x \rightarrow x = (-1) \frac{3}{2}$$

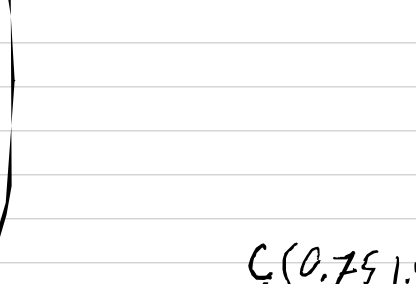
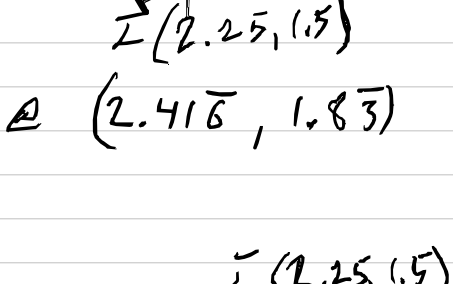
$$= -\frac{3}{2}$$

Holes

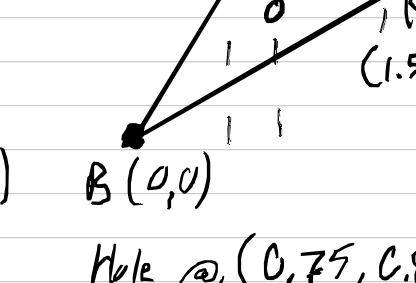
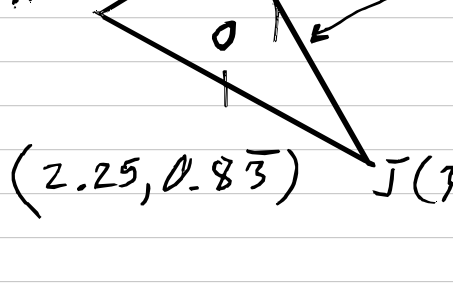


$$\text{Centroid } \bar{x} = \frac{1 + 1.5 + 2}{3} = 1.5$$

$$y = \frac{2 + 2 + 3}{3} = 2.3$$

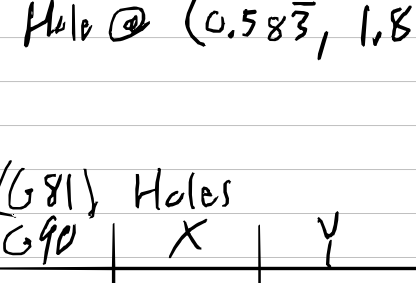
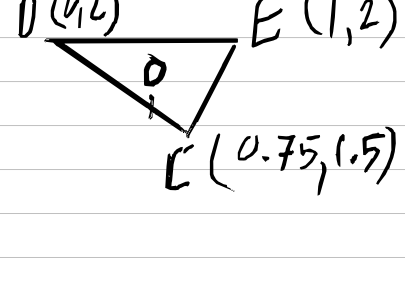


$$\text{Hole @ } (2.41\bar{6}, 1.8\bar{3})$$



$$\text{Hole @ } (2.25, 0.8\bar{3})$$

$$\text{Hole @ } (0.75, 0.8\bar{3})$$



(G81) Holes

G90	X	Y
1	1.5	1.6
2	1.5	2.3
3	2.41 $\bar{6}$	1.8 $\bar{3}$
4	2.25	0.8 $\bar{3}$
5	0.75	0.8 $\bar{3}$
6	0.58 $\bar{3}$	1.8 $\bar{3}$