Questions? I'm taking roll and getting out of your way, this morning.

Sundays at 7. July, 2007. 40% Live on Stage. That's me on the harp.

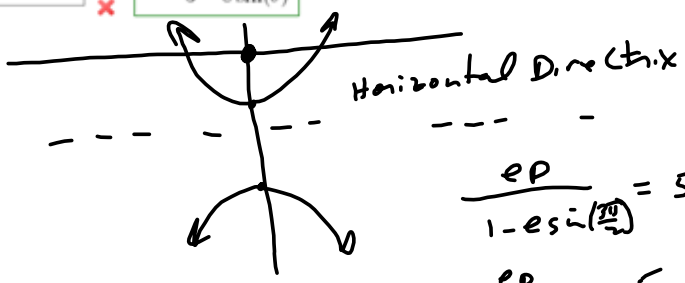
22. 0/1 points

Find a polar equation of the conic in terms of r with its focus at the pole.

Conic	Vertices
Hyperbola	(5, 3π/2), (11, 3π/2)

$r = \frac{55}{3 - 8\sin(\theta)}$

$r = \frac{ep}{1 - e\sin\theta}$



$\frac{ep}{1 - e\sin(\frac{3\pi}{2})} = 5 \rightarrow$

$\frac{ep}{1 - e(-1)} = 5 \rightarrow ep = (1+e)(5)$

$(1+e)5$

$\frac{ep}{1 - e(-1)} = 11 \rightarrow$

$ep = 11(1+e)$

$11(1+e) = 5(1+e)$??

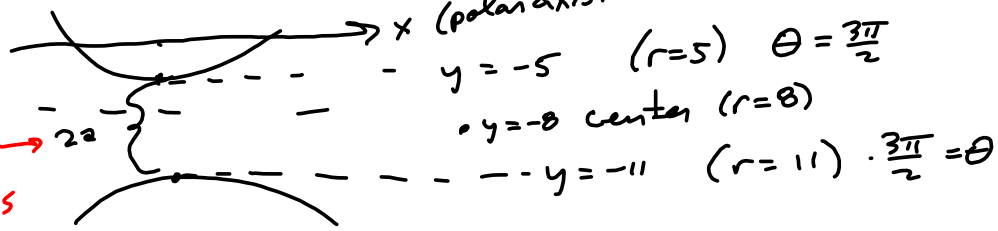
$11 + 11e = 5 + 5e$

$6e = -6$

$e = -1$?! But $e > 1$!

Try again:

Need to review c & a. Relate them to e.



Gives us a → Center & Focus gives us c = Distance from center to focus

$$a = \frac{11-5}{2} = \frac{6}{2} = 3$$

$c = 8$

$$e = \frac{c}{a} = \frac{8}{3}$$

↳ The key. & the info gave us c & a.

$$r = \frac{ep}{1-e\sin\theta}$$

$$r = \frac{(8/3)p}{1-\frac{8}{3}\sin\theta}$$

Plug in $\frac{3\pi}{2}$

$$\frac{\frac{8}{3}p}{1+\frac{8}{3}} = 5$$

$$\frac{8}{3}p = 5 + \frac{40}{3} = \frac{55}{3}$$

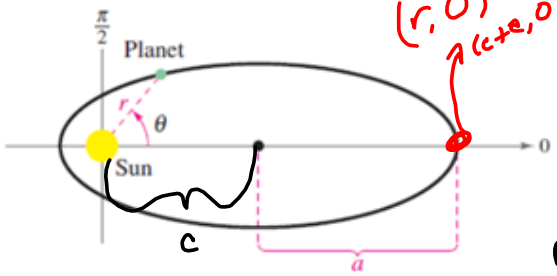
$$\Rightarrow p = \left(\frac{55}{3}\right)\left(\frac{3}{8}\right) = \frac{55}{8}$$

$$\frac{\left(\frac{8}{3}\right)\left(\frac{55}{8}\right)}{1-\frac{8}{3}\sin\theta} = \frac{\frac{55}{3}}{\frac{3-8\sin\theta}{3}} = \frac{55}{3}\left(\frac{3}{3-8\sin\theta}\right)$$

$$= \frac{55}{3-8\sin\theta}$$

23. 0/4 points LarTrig10 6.9.053. [3884589]

The planets travel in elliptical orbits with the sun at one focus. Assume that the focus is at the pole, the major axis lies on the polar axis, and the length of the major axis is $2a$ (see figure). Show that the polar equation of the orbit is $r = a(1 - e^2) / (1 - e \cos \theta)$, where e is the eccentricity.



$(r, 0) = (c+a, 0)$

$e = \frac{c}{a}$ ⇒

$c = ea$

$r = \frac{ep}{1 - e\cos\theta}$

Directrix vertical & to the left.

$r(0) = c + a$ in this orientation.

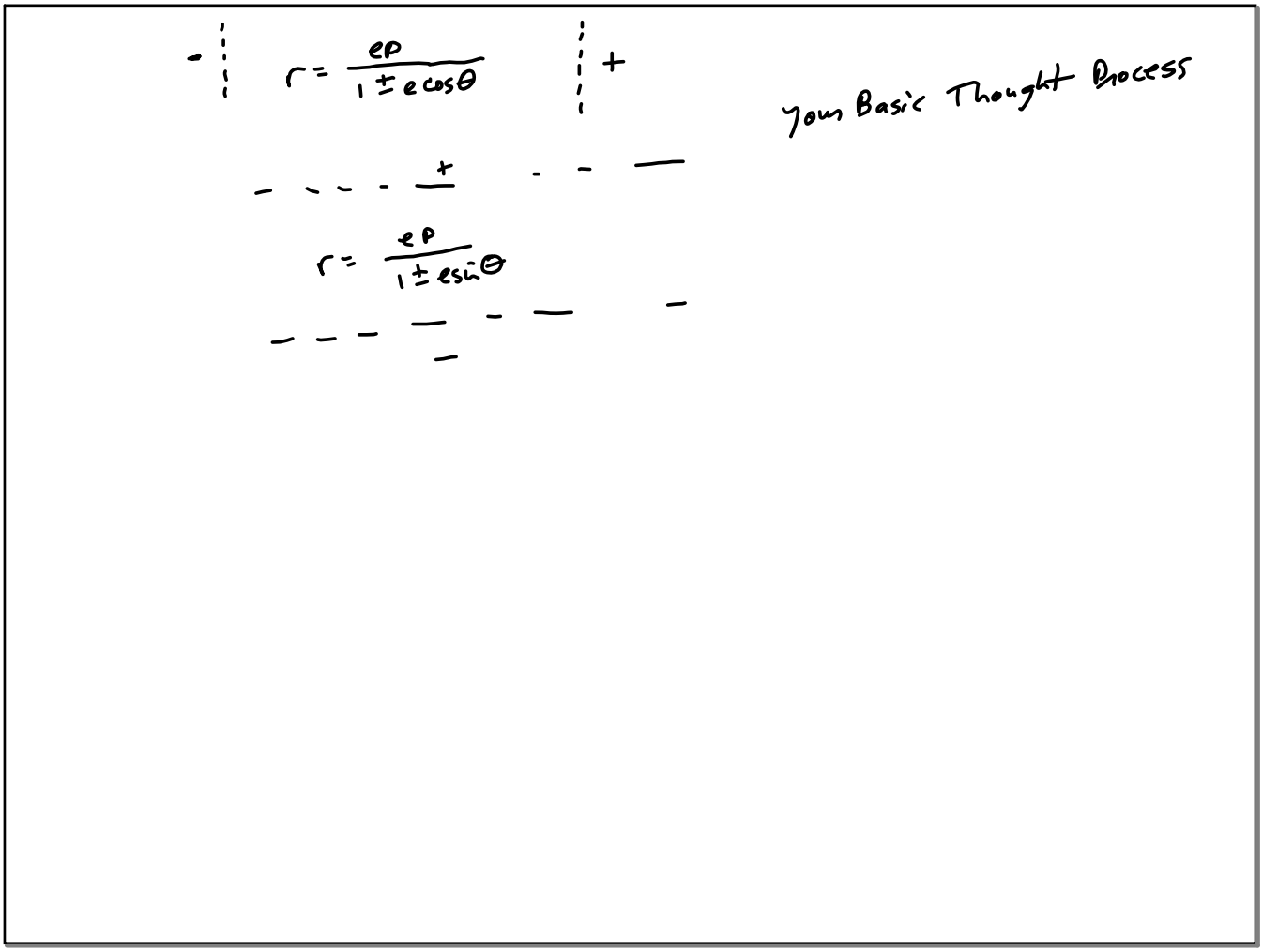
$\frac{ep}{1-e} = c + a = ea + a = a(1+e)$

$ep = a(1+e)(1-e)$ ⇒

$r = \frac{a(1-e^2)}{1 - e\cos\theta}$

for ellipse with major axis horizontal & directrix to the left of the pole.

The only advantage to this is you can rotate these objects by replacing θ by $\theta + s$ & s will be the angle of rotation.


$r = \frac{ep}{1 \pm e\cos\theta}$
$r = \frac{ep}{1 \pm e\sin\theta}$
Your Basic Thought Process

Final Grades Deadline: May 16th @ Noon, so I have some flexibility; but not much-
WebAssign shuts off @ Midnight, Tuesday, May 10th.

In Math, you (I) will always feel dumb, because you can't do it until you finally grasp it (so you feel dumb), and then when you DO grasp it, you feel dumb for how long it took you to grasp something so easy.

My Phone #: 970-290-0550

And of course, my e-mail: hmills1@online.aims.edu (also from the Classlist in the D2L).

Nobody Knows You When You're Down and Out.

Last question on the Chapter 6 Test is the hyperbola question we did in class, today.

Hope that helped you.