

Name _____

Date _____ per _____

Pathman

Algebra II – Calc

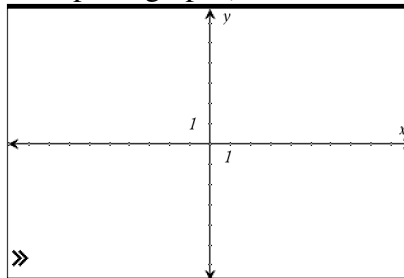
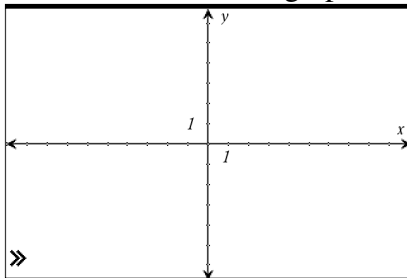
Objective: Practice translations with asymptotes.

Instructions: Show work.

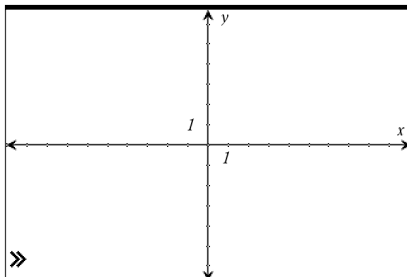
1. Graph on your TI-Nspire $f_1(x) = \frac{1}{x}$, $f_2(x) = \frac{1}{x^2}$, $f_3(x) = \frac{1}{x^3}$, and $f_4(x) = \frac{1}{x^4}$.

Describe observations verbally.

Now describe them graphically (& use words to explain graphs)



2. Predict what $y = -\frac{1}{x}$ will look like.

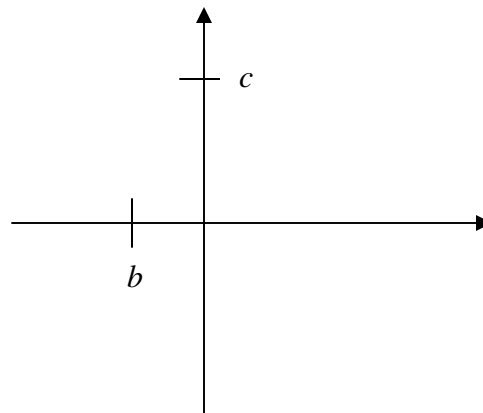


Now graph it on your TI-Nspire. Were you correct? _____ Fix it if you were not.

3. What do you call the line that the graph approaches? _____
(if you don't know you will soon find out)
4. What do you know about transformations? Use the function $f(x + b) + c$ to describe how it differs from $f(x)$.

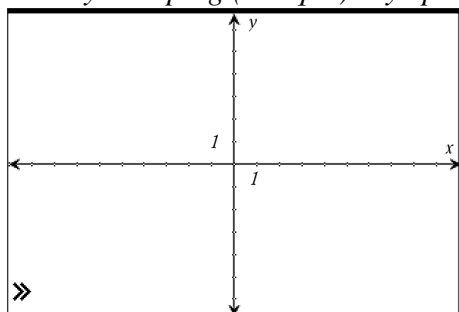
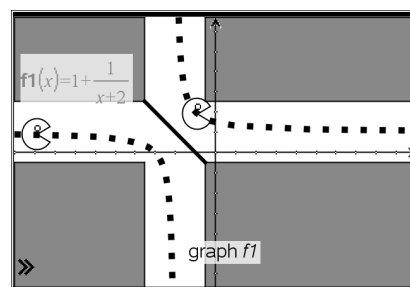
5. Graph $y = \frac{1}{(x+b)} + c$.

[Do you know why I put the denominator in parentheses?
It will help you not make a mistake when you graph it
on your TI-Nspire (or just use $\frac{\square}{\square}$)].

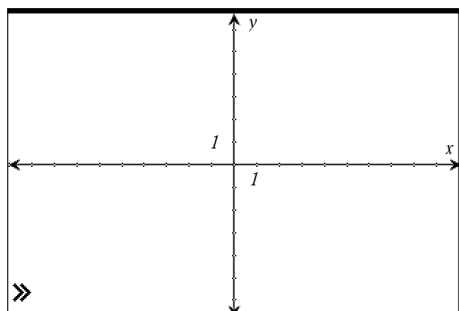


6. You are now ready for Pathman.tns. Sketch your graph and WRITE your equation for at least 3 mazes. (Press **ctrl menu** on the graph f1 to change the attributes if you want to make the function look like Pacman's dots.)

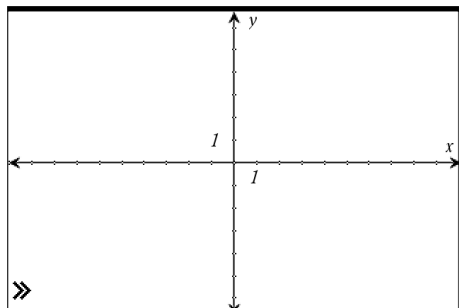
Try a sloping (oblique) asymptote in level 3.



Equation: _____



Equation: _____



Equation: _____

Explore some more: http://mathforum.org/library/drmath/sets/select/dm_asymptote.html has some nice information on asymptotes: etymology, horizontal, vertical and oblique asymptotes. Pathman.tns was written by Nelson Sousa and is available at <http://www.nelsonsousa.pt/>