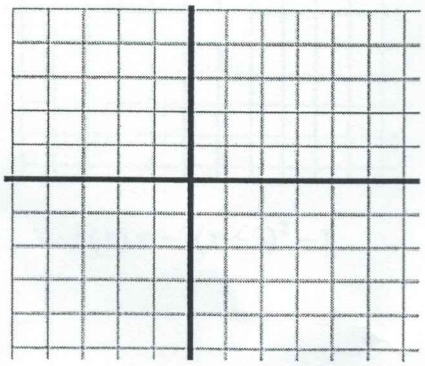
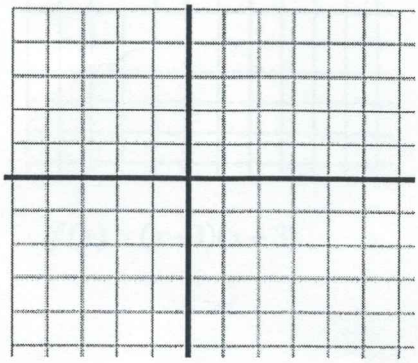
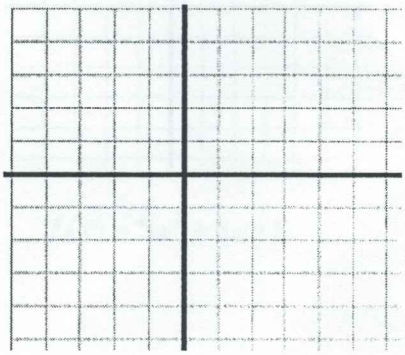
. Sketch the graph of each function by finding x-intercepts, the y-intercept, and horizontal and vertical asymptotes. Explain the relationship between the first two graphs and the function, $g(x)=\frac{1}{x}$ and write each in $f(x)=\frac{c}{x-a}+b$ form. Use your graphing calculator to finalize your graph of the third function.



$f(x)=\frac{-2x-4}{x+1}$



$f(x)=\frac{3x+1}{x-2}$



$f(x)=\frac{(x-3)(x+1)}{(x+2)^2}$

17. Write each rational function in compound form and find the horizontal asymptote.

a. $f(x)=\frac{5x^2-2x+7}{2x^2-4x+3}$

b. $f(x)=\frac{2x+7}{x^2-4x+3}$

18. The game commission introduces 50 deer into newly acquired game lands. The population N of the herd is modeled by $N=\frac{10(5+2t)}{1+.05t}$ where t is the number of years since the deer were first introduced.

a. How large will the population of deer be after 15 years?

b. What is the horizontal asymptote? _____ What does the horizontal asymptote tell you about the deer population?

19. A cannonball that is fired out to sea from a shore battery follows a parabolic trajectory given by the graph of the equation $h(x)=12x-.01x^2$ where h(x) is the height of the cannonball above the water when it has traveled a horizontal distance of x feet.

a. What is the maximum height that the cannonball reaches?

b. How far does the cannonball travel horizontally before splashing into the water?