Math 199
Fall, 2005
Quiz 7 - §2.4

Name: **Solutions**(Yellow)

For the next problems, show all work to receive full credit. No Work = No Credit.

1. Use the function $f(x) = \dfrac{x+3}{(x+2)(x-2)}$.

   (a) Find the domain of $f(x)$.
   We need for the denominator to not be 0. So we need $x \neq -2$ and $x \neq 2$.

   (b) Find the vertical asymptote(s) of the function.
   These occur when the denominator is zero, and the domain issues don't cancel with the numerator, so they are at $x = -2$ and $x = 2$.

   (c) Find the horizontal asymptote(s) of the function.
   Since the degree of the denominator is larger than the degree of the numerator, the horizontal asymptote is $y = 0$

   (d) Find the $y-$intercept(s) of the function.
   This happens when $x = 0$, so

$$y = \frac{0+3}{(0+2)(0-2)} = \frac{3}{-4}$$

   (e) Find the $x-$intercepts of the function.
   This happens when $y = 0$, so when the numerator of the function is 0,

$$x + 3 = 0$$

$$x = -3$$