4. The graph of the rational function f whose rule is $f(x) = \dfrac{3x^2 + 1}{x^2 + x + 1}$ has the horizontal asymptote y = 3.

   The graph of f crosses its horizontal asymptote at the point **P**. Find the **exact** coordinates of the point **P**.

5. The rational function f whose rule is $f(x) = \dfrac{x^2 - 2}{x - 3}$ has a slant asymptote as shown in Figure 2. Determine the equation of that slant asymptote. Show all your work.

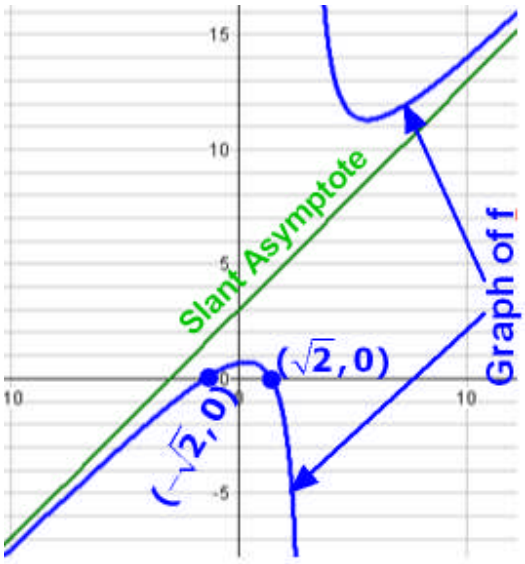

Figure 2

SLU PreCalculus Quiz 4 Fall 2007

NAME: _____Score_____/10

Please **print** your name

1. What is the horizontal asymptote (if there is one) of the function whose rule is $f(x) = \dfrac{-4x^2 + 3}{(x-3)(3x+1)}$

   Remember a horizontal asymptote is a line not a number.

2. What are the zeros of the rational function whose rule is $f(x) = \dfrac{-4x + 3}{(x-3)(3x+1)}$

3. What are the vertical asymptotes of the rational function whose rule is $f(x) = \dfrac{(3x+5)(x-2)}{(x+1)(x+2)(3x+5)}$

   Remember a vertical asymptote is a line not a number.

Turn the page over. **This is a two sided quiz** **Flip the page**