Quiz #3  
Math 221

Instructions. Be sure to show your work and explain your reasoning for full credit.

NAME __________________________

1. Determine the horizontal and vertical asymptotes to

\[
\frac{3x^2 - 12}{x^2 + x - 2}
\]

2. Let \( C \) be the circle \( x^2 + y^2 = 1 \). How can one use the Intermediate Value Theorem to show that there is a point \( P \) on \( C \) such that the area of the triangle determined by \((1, 0), (-1, 0)\) and \( C \) is \( \frac{\pi}{4} \)? Hint: How does the area of the triangle change as one chooses different points on \( C \)?