Version 2 MAT 115: Standard Quiz 2F Name:

Instructions: Answer the questions below as completely as you can. Show all of your work and use complete sentences where appropriates. Graphing calculators are not allowed.

1. The questions on this page are about the following rational function:

$$f(x) = \frac{3x - 4}{x^2 - 25}\,.$$

(a) Find the intercepts, both vertical and horizontal, if they exist. *Write your responses as ordered pairs.*

(b) Determine if $f(x)$ has any vertical or horizontal asymptotes. If so, give an equation for each asymptote.

(c) Does the graph of $f(x)$ have any holes? If so, where are they?

2. Draw a graph below of the rational function $f(x)$ with the following properties:

- Vertical intercept at $(0, 3)$
- $f(-1) = 0$ and $f(1) = 0$.
- Vertical asymptotes at $x = 2$ and $x = -2$
- As $x \to \infty$, $f(x) \to 3$
- As $x \to -\infty$, $f(x) \to 3$
- Hole at $(3, 4)$.
- $f(-4) > 3$.