Name: _____ Mark: _____

Mini-math Div 3/4: Friday, September 24, 2021 (15 minutes)

1. (2 points) Find the following limit, if it exists. If it does not, indicate if the limit is $-\infty, \infty$, or DNE. (No proof required)

$$\lim_{x \to 2^-} \frac{x-3}{x(x-2)}$$

2. (2 points) Find the horizontal and vertical asymptotes of the following function. (No proof required)

$$f(x) = \frac{(x-4)(x-1)(2x+3)}{(x-1)(2x-3)^2}$$

3. (2 points) (AP) What conditions must be true in order for the Intermediate Value Theorem to guarantee a solution to the equation $f(x) = 4$ on the interval $[0, 3]$?

4. (2 points) (AP) Find the horizontal and vertical asymptotes of the following function. (No proof required)

$$g(x) = \frac{e^{2x}\sin x - e^x + 2e}{e^{2x} - e}$$

5. (2 points) (AP) Find the horizontal and vertical asymptotes of the following function. (No proof required)

$$h(t) = \frac{t+1}{\sqrt{t^2-4}+2t}$$