

Drill Handout Section 2.4 September 5, 2019 Name: _____

(1) Evaluate

$$\lim_{x \rightarrow 0} \frac{x+1}{1-\cos x}.$$

(2) Determine the limits analytically:

(a)

$$\lim_{x \rightarrow 1^+} \frac{x^2 - 1}{(x - 1)^2}$$

(b)

$$\lim_{x \rightarrow 1^-} \frac{x^2 - 1}{(x - 1)^2}$$

(c)

$$\lim_{x \rightarrow 1^+} \frac{x^2 + 1}{(x - 1)^2}$$

(d)

$$\lim_{x \rightarrow 1^-} \frac{x^2 + 1}{(x - 1)^2}$$

(3) Find all vertical asymptotes $x = a$ of the function

$$f(x) = \frac{x^2 - 6x + 8}{x^2 - 4}.$$

For each value of a , determine $\lim_{x \rightarrow a^+} f(x)$, $\lim_{x \rightarrow a^-} f(x)$, and $\lim_{x \rightarrow a} f(x)$.