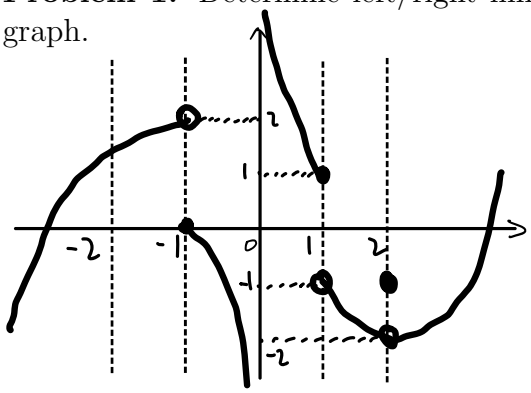
MATH 2250 WORKSHEET 20220829
INSTRUCTOR: RUIWEN SHU

Notice: When determining limits, calculate the value of the limit if it exists; otherwise, if it is positive/negative infinity, please indicate; otherwise, please write DNE.

Problem 1. Determine left/right limits at $x = -1, 0, 2$ for the function with the following graph.



Problem 2. Determine limits.

1. $\lim_{x\to 1^+} \frac{x+2}{x+1}$
2. $\lim_{x\to 1^+} \frac{x-1}{x^2+3x-4}$
3. $\lim_{x\to 1^+} \frac{x-1}{x^2-2x+1}$
4. $\lim_{x\to 2} \frac{2-x}{\frac{1}{x}-\frac{1}{2}}$
5. $\lim_{x\to -1} \frac{x^2+x}{1+\frac{1}{x}}$
6. $\lim_{x\to 0^-} (\frac{1}{x} - \frac{1}{x^2+x})$
7. $\lim_{x\to 0^-} (\frac{2}{x} - \frac{1}{x^2+x})$
8. $\lim_{x\to 0^+} \frac{x^2+x}{|x^2-x|}$
9. $\lim_{x\to 1} \frac{x(x+2)-x-2}{(x+1)(x+2)-6}$

Problem 3. Determine all vertical asymptotes of the following functions.

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