

MATH 108 – QUIZ 4 – 24 SEPTEMBER 1998

Answer all of the following questions in the space provided. Show all work as partial credit may be given. Answers without justification, even if they are correct, will earn no credit.

1. (3 pts.) Is the function $f(x) = \begin{cases} x + 1 & \text{if } x \leq 0 \\ 1 & \text{if } x > 0 \end{cases}$ continuous at $x = 0$? Fully explain your answer.

2. (2 pts. each) Evaluate each of the following limits, if they exist.

(a) $\lim_{x \rightarrow \infty} \frac{5 - x^3}{2x^3 + 3}$

(b) $\lim_{x \rightarrow \infty} \frac{(x + 1)(x - 3)}{x^3}$

3. (3 pts.) Find all vertical and horizontal asymptotes of the function $f(x) = \frac{x}{x - 1}$.