

1. [7 points] Let

$$p(w) = \frac{w}{1 + e^w}.$$

a. [2 points] Evaluate each of the limits below. If a limit does not exist, including if it diverges to $\pm\infty$, write DNE. You do not need to show work.

i. $\lim_{w \rightarrow \infty} p(w)$

Answer: _____

ii. $\lim_{w \rightarrow -\infty} p(w)$

Answer: _____

b. [5 points] Use the limit definition of the derivative to write an explicit expression for $p'(2)$.

Your answer should not involve the letter p. Do not attempt to evaluate or simplify the limit.

Write your final answer in the answer box provided below.

Answer: $p'(2) =$