1. [7 points] Let 

\[ g(w) = 1 - \frac{e^w}{6w}. \]

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. \( \lim_{w \to \infty} g(w) \)

Answer: ______________

ii. \( \lim_{w \to -\infty} g(w) \)

Answer: ______________

b. [5 points] Use the limit definition of the derivative to write an explicit expression for \( g'(3) \). Your answer should not involve the letter \( g \). Do not attempt to evaluate or simplify the limit. Write your final answer in the answer box provided below.

Answer: \( g'(3) = \)