3. [9 points] Consider the function \( h \) defined by

\[
h(x) = \begin{cases} 
  \frac{60(x^2 - x)}{(x^2 + 1)(3 - x)} & \text{for } x < 2 \\
  c & \text{for } x = 2 \\
  5e^{ax} - 1 & \text{for } x > 2
\end{cases}
\]

where \( a \) and \( c \) are constants.

a. [5 points] Find values of \( a \) and \( c \) so that both of the following conditions hold.
   - \( \lim_{x \to 2} h(x) \) exists.
   - \( h(x) \) is not continuous at \( x = 2 \).

   Note that this problem may have more than one correct answer. You only need to find one value of \( a \) and one value of \( c \) so that both conditions above hold. Remember to show your work clearly.

   Answer: \( a = \) __________ and \( c = \) __________

b. [2 points] Determine \( \lim_{x \to -\infty} h(x) \). If the limit does not exist, write DNE.

   Answer: \( \lim_{x \to -\infty} h(x) = \) __________

c. [2 points] Find all vertical asymptotes of the graph of \( h(x) \). If there are none, write NONE.

   Answer: Vertical asymptote(s): _______________