1. (4 points) You do not need to show your work. Only the answer will be graded.

1. (2 points) Find a value of \( a \) so that for all \( x > a \)

\[
\frac{1}{x-2} > \frac{1}{(x-2)^2}.
\]

2. (2 points) True or false: for all \( x > 0 \)

\[
\frac{x}{\sqrt{1+x^2}} < \frac{1}{\sqrt{x}}.
\]
2. (6 points) Show your work. Partial credit may be awarded.
Compute \( \int \frac{e^{2x}}{\sqrt{1 + e^{4x}}} \, dx \).