# Assignment Week 11 

COMP 150
Spring, 2021
\# Your name here

An exponential function $f(x)=b^{x}$, where $b>1$, is "eventually bigger than" a power function $g(x)=x^{p}$, where $p>0$.
(1) Define the exponential function $f(x)=2^{x}$ and the power function $g(x)=x^{9}$ in Sage for use throughout this assignment.
(2) What are the limits of $f(x)$ and $g(x)$ as $x$ approaches infinity? Use Sage to support your claim. Explain your work.
(3) Which function is larger at $x=0$ ? Use Sage to support your claim. Explain your work.
(4) At some $x$-value between 1 and 2, the exponential function is overtaken by the power function. Use Sage to support this claim. Use comments to explain your work and conclusions.
(5) At some $x$-value between 51 and 52 the functions intersect each other again. Use Sage to support this claim. Use comments to explain your work and conclusions.

