To prove which function grows faster as x→∞, we examine the limit of the ratio of g(x) to f(x):

A mathematical equation with black lines

Description automatically generated with medium confidence

Using Logarithms to determine Growth Rate:

A math equations on a white background

Description automatically generated

As, x→∞, xln(5) (from g(x)) grows much faster than 5ln(x) (from f(x)).

Limit calculation:

A mathematical equation with numbers and symbols

Description automatically generated

This proves, g(x) = 5^x increases faster than f(x) = x^5 as x→∞.