

This is Due Friday, October 26th at the beginning of class.

1. Write $g(x) = 2 \cdot 2^{x-1} - 4$ in terms of $f(x) = 2^x$. That is, write $g(x) = a f(bx + c) + d$, for appropriate choices of a, b, c and d . Then sketch the graph of g by transforming the graph of f . I expect to see 3 points labeled in the graph of f and to see where those points get moved to in each step.

2. Let $f(x) = 2 \cdot 3^{x+2} - 7$. Find $f^{-1}(x)$.

3. Suppose the half-life of carbon-14 is (approximately) 5800 years. (I think it's 5600 years in the textbook, but let's roll with 5800.) How old is a sample from a neolithic fire pit if it is found that 15% of naturally-occurring carbon-14 is present in the sample? Round your final answer to the nearest year.

4. The population of a city is growing at 4% annually. If the population is 40,000 today, what will it be in 5 years, if the population continues growing uninhibitedly? Round to the nearest person.