F-LE Boom Town

Task

The population of Pittsburgh was about 12,600 in 1820. Between 1820 and 1840 the population grew exponentially, increasing by about 70% each decade.

a. Construct an exponential function in the form $f(t) = ab^t$ that models the population t decades after 1820.

b. According to your model, what was the population of Pittsburgh in 1825? What about 1839?

c. According to your model, by what percentage did the population increase between 1826 and 1836?

d. Explain the answer to part (c) in terms of the growth factor b.