

Chapter 1.2: A Little bit more with Exponential Functions

Calculus I

College of the Atlantic. September 19, 2024

1. The number of squirrels in a large farmhouse grows by four percent every month. In July, the population of squirrels was 59. Write down a function $P(t)$, for the population of squirrels as a function of time t , measured in months since July.
2. The population of a city is decaying exponentially. In 2021 the city's population was 45,692. In 2022, the city's population is 42,521.
 - (a) Write down a function for $P(t)$, the population of the city, as a function of time t measured in years since 2021.
 - (b) By what percent does the population decrease every year?
 - (c) What will the population of the city be in 2025?



Figure 1: American Red Squirrel (*Tamiasciurus hudsonicus*), Cap Tourmente National Wildlife Area, Quebec, Canada. Image source: https://commons.wikimedia.org/wiki/File:Tamiasciurus_hudsonicus_CT.jpg. Image by Cephas, licensed under the Creative Commons Attribution-Share Alike 3.0 Unported license.