5.5.1 Exponential Growth Model Example

Example 1. *In ideal laboratory setting, a bacteria colony grows exponentially. The experiment started at 4 pm and has 100 bacteria cells in the colony. At 9 pm, the colony expanded to 2000 cells.*

(a) Find the size of the colony at any time t.

(b) How long does it take in total for the size of colony to reach 50,000?

(c) How fast was the colony growing at 5 pm?

5.5.2 Exponential Decay Model Example

Example 2. *(Carbon Dating) Carbon-14 is a radioactive material that decays exponentially. Skeletal remains of the so-called Pittsburgh Man, unearthed in Pennsylvania, had lost 82% of the Carbon-14 they originally contained. The half-life of Carbon-14 is 5770 years. Determine the approximate age of the bones.*

[Half-life of a radioactive substance means the time required to reach half of the initial amount]