

4. [9 points]

- a. [4 points] A population of frogs lives in the forest. In 2000, there are 2500 frogs in the forest. The frog's population decreases at a rate of 6.2% per year. Let $f(t)$ be the number of frogs in the forest t years after 2000.

- i) [3 points] Find a formula for $f(t)$, assuming the decay rate of the population of frogs continues at the same percent rate per year.

$$f(t) = \underline{\hspace{10em}}$$

- ii) [1 points] How many frogs are in the forest in 2008? $\underline{\hspace{10em}}$

- b. [5 points] In the same forest there is a population of 1400 birds on the first day of October. Winter is arriving, and the birds are migrating to a warmer place. Every day, 25 birds leave the forest. Let $B = b(d)$ be the number of birds left in the forest, d days after October 1st.

- i) [2 points] Find a formula for $b(d)$.

$$b(d) = \underline{\hspace{10em}}$$

- ii) [3 points] Find and give a practical interpretation of the horizontal intercept of the graph of $B = b(d)$.

Horizontal intercept = $\underline{\hspace{10em}}$

Practical interpretation: