

3. [5 points] A mysterious substance decays by 30% every 6 years. Find the half-life of this substance. (*Show your work carefully and either give your answer in exact form or round your answer to the nearest 0.01 year.*)

Answer: _____

4. [7 points] Consider the function B defined by $B(x) = 15 - e^{-0.001x}$.

a. [3 points] Let $f(x) = e^x$. Use transformations to find a formula for $B(x)$ in terms of f .

$B(x) =$ _____

- b. [4 points] Find the vertical and horizontal asymptotes of the graph of $y = B(x)$. (If there are no vertical or no horizontal asymptotes, write "NONE" on the appropriate line(s).)

Vertical asymptote(s): _____

Horizontal asymptote(s): _____