8. [12 points] Note that you do not have to show work on this problem. However, any work or reasoning you do show may be considered for partial credit.

   a. [4 points] Suppose $h$ is an odd function and that $(12, -8)$ is a point on the graph of $y = h(t)$. Find the coordinates of two points that must be on the graph of $y = -3h(t + 7)$.

   **Answers:** ___________________________ and ___________________________

   b. [4 points] Suppose the graph of $y = k(x)$ has $y = 4$ as its only horizontal asymptote and $x = -2$ as its only vertical asymptote. If $g(x) = k(-3x) + 11$, what are the equations of the horizontal and vertical asymptotes of the graph of $y = g(x)$?

   **horizontal asymptote:** ___________  **vertical asymptote:** ___________

   c. [4 points] Suppose the domain of $f(x)$ is the interval $[-4, \infty)$. Find the domain of the function $p$ defined by $p(x) = 5 - f(-2x + 1)$.

   **Answer:** ___________________________

9. [5 points] An exponentially growing population of mice triples in size every 120 days. How long does it take this population to increase by 400%? (Show your work step-by-step, and give your answer in exact form.)

   **Answer:** ___________________________