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: _____