8. [8 points] Archaeologists have discovered what seems to be scientific research papers near some dinosaur fossils. The papers talk about the “danger level”, $L$, of a potential asteroid impact. From what they can read, the formula is given by
\[
L = 3 \log \left( \frac{4M}{k} \right)
\]
where $M$ is the mass of the asteroid, in kg, and $k$ is a positive constant. For this problem, leave all your answers in exact form.

a. [4 points] Suppose an asteroid has a danger level of 7.5. What would the mass of the asteroid be? Your answer should include units, and may involve the constant $k$. 

Mass = 

b. [4 points] Let $N$ be the danger level of an asteroid of mass $12A$ kg, and let $n$ be the danger level of an asteroid of mass $5A$ kg, where $A$ is a positive constant.
Compute $N - n$. Simplify your answer so that it does not include $k$ or $A$. 

$N - n =$