1. Oil leaks out of a container at a rate of \( r = f(t) \) gallons per minute, where \( t \) is in minutes. Write a definite integral expressing the quantity of oil that leaks out of the container in the first hour.
\[
\int_{0}^{60} f(t) \, dt
\]

2. Pollution is removed from a lake at a rate of \( f(t) \) kg/day on day \( t \).
   
   (a) Explain the meaning of the statement \( f(12) = 500 \).
   
   On day 12, the removal rate is 500 kg/day

   (b) If \( \int_{5}^{15} f(t) \, dt = 4000 \), give the units of the 5, the 15, and the 4000.
   
   Days, days, kilograms

   (c) Give the meaning of \( \int_{5}^{15} f(t) \, dt = 4000 \)
   
   4000 kg removed between day 5 and day 15.