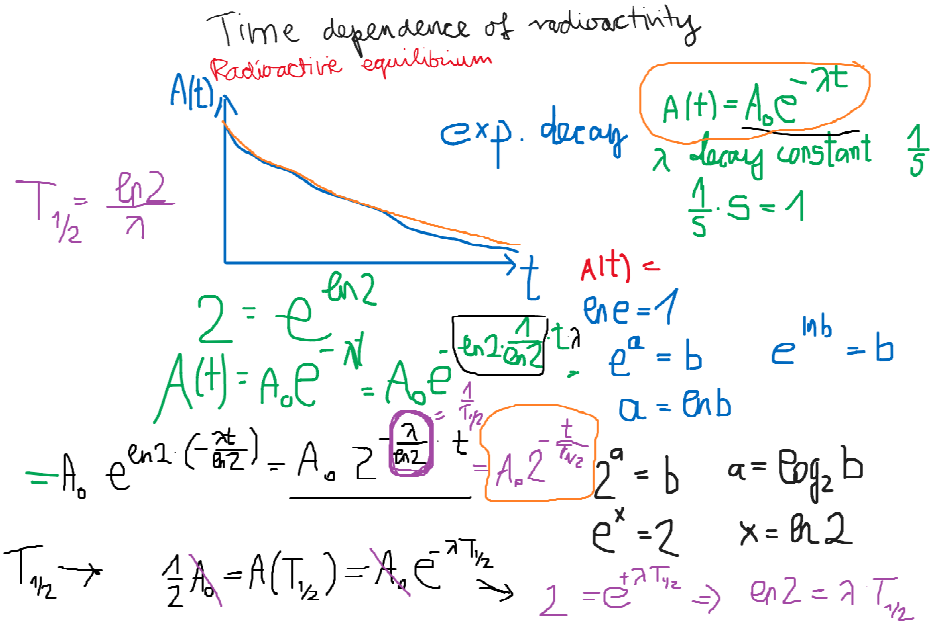
WORKSHEET 5 .

topic: Time dependence of radioactivity

1. What mathematical function can decribe the radioactivity in time.

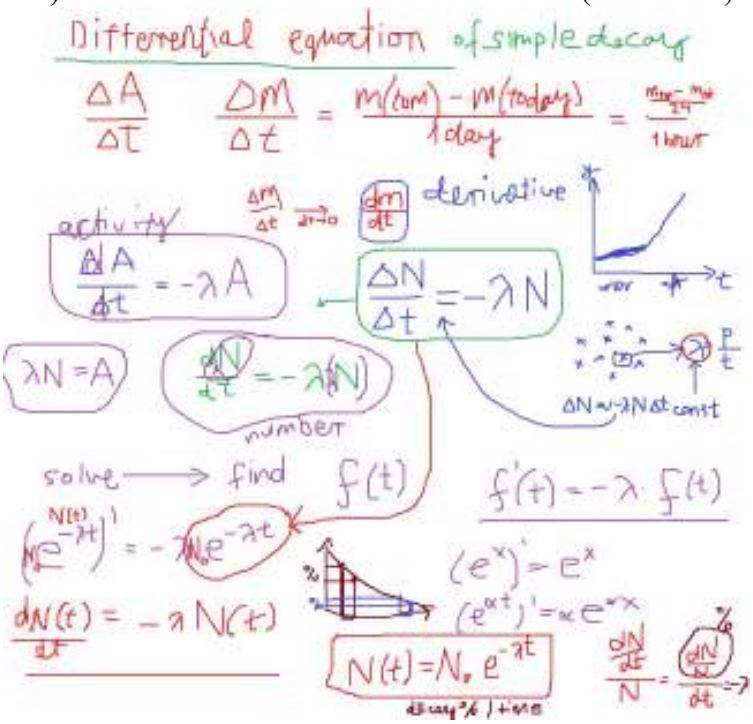
A = activity = number of decayed atoms per time



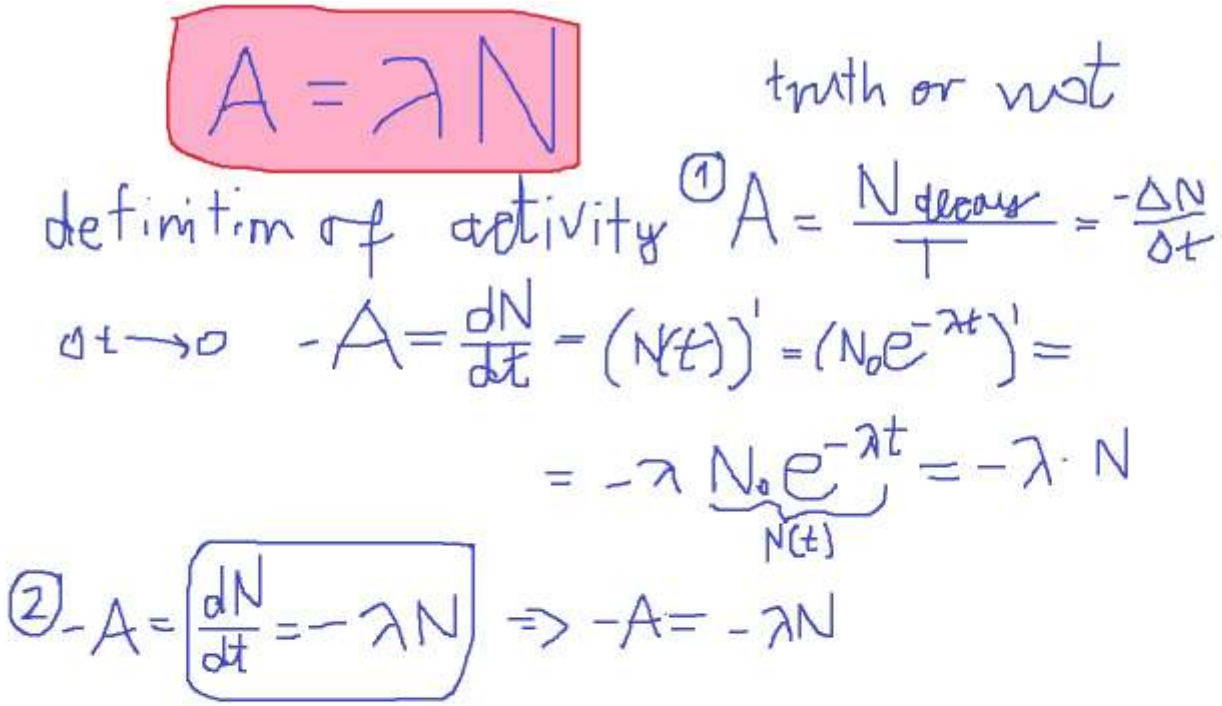
concepts: half life, decay constant, logarithm, e=2,71…, ln(2) = 0,69… ,
exponential decay law

2. What is behind the exponential decay law?

The exponential decay law, describes a mathematical function that is a solution of a differential equation. That differential equation is established from that the decay probability per time (decay speed) is constant in time for 1 atomic nucleus (for 1 atom)



3. There is a very important formula that gives the relationship between the activity of a smaple and the number of radioactive isotopes in the sample. **Why is it true?**



It can be mathematically derived from the exponential decay law.