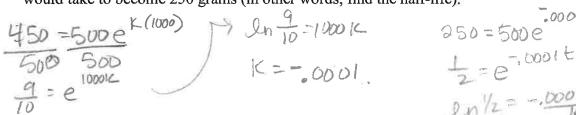


500 grams of a certain radioactive material decays to 450 grams in 1000 years. Find how long it would take to become 250 grams (in other words, find the half-life).

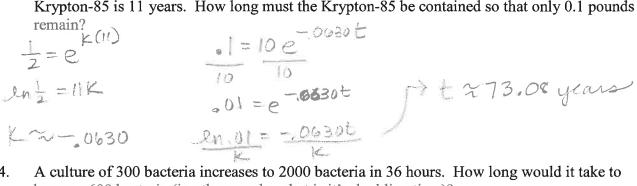


- en/2= -,0001 = -t= (6578.81)
- In exercise 1, find the amount left after 2000 years.

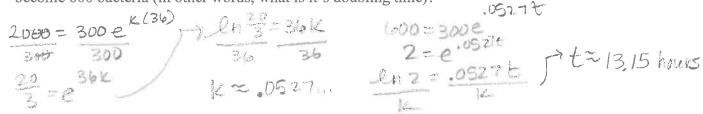
$$A(2000) = 500 e^{-20001(2000)}$$

= 405.0 grams

A typical nuclear power plant produces about 10 pounds of Krypton-85 per year. The half-life of 3. Krypton-85 is 11 years. How long must the Krypton-85 be contained so that only 0.1 pounds



A culture of 300 bacteria increases to 2000 bacteria in 36 hours. How long would it take to become 600 bacteria (in other words, what is it's doubling time)?



A culture of 450 bacteria increases to 3000 bacteria in 4 days. How much bacteria would be

$$\frac{3000 = 450e^{K(4)}}{450} = 450e^{K(4)}$$

$$\frac{20}{3} = e^{4K}$$

$$\ln \frac{20}{3} = 4K$$

$$\ln \frac{20}{3} = 4K$$

A cake is removed from an oven when it's temperature is 375°F in a room with a constant temperature of 72 °F. It takes 5 minutes for it to reach 345 °F. How long will it take for the cake

temperature of 72 °F. It takes 5 minutes for it to reach 345 °F. How long will it take for the cake to cool down to 150 °F?

$$345 = 72 + (375 - 72)e^{(5)}$$
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