

Growth and Decay

Homework

Solve the following problems:

268. If \$50 is deposited in an account that earns 4% compounded monthly, what is the balance in the account after 4 years?

269. A bacteria colony is growing at a continuous rate of 5% per day. If there were 7 grams to start, what is the mass of the colony after 20 days?

270. A bacteria colony is growing at a continuous rate of 6% per day. How long until the colony doubles in size?

271. If a car depreciates at an annual rate of 10% and you paid \$20,000 for it, how much is it worth in 4 years?

272. An unknown isotope is measured to have 200 grams on day 1 and 150 grams on day 30. At what rate is the isotope decaying? At what point will there be 50 grams left?

273. An antique watch made in 1752 was worth \$280 in 1940; in 2000 it was worth \$3200. If the watch's value is appreciating continuously, what will be its value in 2010?

274. If a \$9000 credit card bill isn't paid one month, the credit company charges 0.5% continuously on unpaid amounts. How much is owed 30 days later? (assume no other charges are made)