Challenge #8

Most older people remember the time before computers when one had to take a small account book to the bank to have the interest posted on their accounts.

As computing machines got more sophisticated, the banks began compounding more times per year. In competition, the banks advertised twice-a-year compounding, then quarterly, then monthly, then daily. Eventually they advertised that your money was compounding an infinite number of times a day. It sounded very good. Would the value of the account grow infinitely large?

Say you invested $100 at 10% for 10 years. How much would you make compounding in each of these ways: Annually, Bi-annually, quarterly, monthly, daily, hourly, a million times per year?

Challenge #8 Solution

Say you invested $100 at 10% for 10 years. How much would you make compounding in each of these ways: Annually, Bi-annually, quarterly, monthly, daily, hourly, a million times per year.

$$A = P(1 + \tfrac{r}{n})^{nt}$$

Where P = 100
r = .1
t = 10

compounding		Amount
n=1	annually	$ 259.37
n=2	bi-annually	$ 265.33
n=4	quarterly	$ 268.51
n=12	monthly	$ 270.70
n=365	daily	$ 271.79
n=8760	hourly	$ 271.82663
n=10^6	A million times	$271.8281693
	More?	$271.8281828

Does the final number look familiar?   (100e)