

A-SSE The Bank Account

Task

Most savings accounts advertise an annual interest rate, but they actually compound that interest at regular intervals during the year. That means that, if you own an account, you'll be paid a portion of the interest before the year is up, and, if you keep that payment in the account, you'll start earning interest on the interest you've already earned.

For example, suppose you put \$500 in a savings account that advertises 5% annual interest. If that interest is paid once per year, then your balance B after t years could be computed using the equation $B = 500(1.05)^t$, since you'll end each year with 100% + 5% of the amount you began the year with.

On the other hand, if that same interest rate is compounded monthly, then you would compute your balance after t years using the equation

$$B = 500 \left(1 + \frac{.05}{12} \right)^{12t}$$

- Why does it make sense that the equation includes the term $\frac{.05}{12}$? That is, why are we dividing .05 by 12?
- How does this equation reflect the fact that you opened the account with \$500?
- What do the numbers 1 and $\frac{.05}{12}$ represent in the expression $\left(1 + \frac{.05}{12} \right)$?
- What does the "12 t " in the equation represent?



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