

The Problem Set

General Instructions: Show formulas used to solve problems. Display the appropriate numbers in the formulas, so partial credit can be assigned if the results aren't quite right. Display interest rate results to nearest hundredth of a percent. When working with money, round off the final answer to the nearest penny.

1. Find the annual effective rate of a savings account that is advertised to be 5.6%, compounded daily.
2. Find the annual effective rate of a savings account that continuously compounds your money at 6.5%.
3. If the annual effective rate of an investment is 7.2%. What is its actual interest rate if the investment is compounded continuously?
4. If the annual effective rate of an investment that's compounded monthly is 7.2%, what is the actual interest rate?
5. If a credit union that is compounding your money continuously, advertises that the effective interest rate is 7.4%, what one-time amount do you put into an account in that credit union that will have a future value of \$10,500 in 12 years? (There are a couple of ways to approach this problem; however, one-way is definitely much easier!)
6. Suppose you have some money tied up into two investments: $\frac{1}{3}$ of it at 5%, compounded monthly and $\frac{2}{3}$ of it at 6.5% compounded continuously. What would be a reasonable number that represents the annual effective interest rate of your total investment? (Hint: You will have to create your own math in the spirit of the definition of the effective annual interest rate). Would you expect your answer to be closer to one interest rate than the other? Which one?
7. Looking back at how we found the *APY* (annual effective interest rate), find the monthly interest rate that is equivalent to a continuous interest rate of 7%.
8. What continuous interest rate would be equivalent to a 6% interest rate, compounded quarterly?