

Name:

Friday, October 3

Homework 5

Do the following problems **on a separate sheet of paper**. I'm going to take off a point if you don't.

Additional practice problems:

4B: 41-42, 45-46, 47-48, 53-56, 61-64, 65-67, 71-74, 85

4C: 45-48, 49-50, 53-56, 57-58

The last two in section 4C are hard – I haven't shown you how to do them yet. But you can do it with a bit of creativity!

1. Your 8 year old nephew Josh has been saving up the money from his lemonade stand. He now has \$100 in savings, and being a sharp kid, he has decided to break open his piggy bank and start making his money work for him by opening a savings account.
All of the neighborhood banks are offering interest rates of 3.6% APR.
 - (a) The First Neighborhood Bank compounds interest annually. How much money would he have after 3 years?
 - (b) The Skateboarders and Gamers Bank compounds interest monthly. How much money would he have in his account after 3 years there?
 - (c) The Princesses and Unicorns Bank compounds interest continuously. How much money would he have in his account after 3 years?
 - (d) What is the APY for each option? Based on the APY, which would be the best banking choice? Does this make sense, given your answers to parts 1a, 1b, and 1c?
2. Josh's best friend is Gygax, from the planet Alpha Copernicii VII. Gygax wants to be an astronaut when he grows up, which means he needs to go to college. He is looking at his savings options.
 - (a) One of Alpha Copernicii VII's big banks is offering a 3.51% interest rate, compounded daily. The other is offering a 3.55% interest rate, compounded quarterly. Which is the better option? (Hint: Try calculating the APY.)
 - (b) Since Alpha Copernicans grow up slower than humans, he has 18 years to save up \$100,000 for college. How much money does he need to deposit now to have enough for college in 18 years?
3. Josh and Gygax's Interplanetary Lemonade Stand has been doing brisk business lately. They are turning a steady monthly profit, and are going to try to deposit some money in their college funds.
 - (a) Josh's money is in an account that has a 4% APR, compounded monthly. If he deposits \$200 every month for ten years, how much money will he have?
 - (b) Gygax's money is also in an account that has 4% APR compounded monthly. He needs to have \$100,000 in 18 years. How much money does he need to deposit every month?