



**Part Two:** *The Magic of  $e \approx 2.71828182846\dots$*

1. Read through *A Closer Look 3.1* on page 144 of the text. Verify the APY for quarterly and monthly compounding.
2. Create a similar table assuming an annual rate of 20% for interest compounded quarterly, monthly, daily, hourly, minutely, and secondly.

Length of Period	APY (Percent)
Quarter	
Month	
Day	
Hour	
Minute	
Second	

3. What APY do these values seem to be approaching? Does this value have any relationship with the value of  $e^{20}$ ?

**Part Three:** *The Rewards of Systematic Savings*

1. Suppose that you deposit \$100 into a bank account paying 4% interest, compounded monthly. How much will the deposit be worth in 24 months (i.e., at the end of the 2 years)?
2. Suppose that a month later you again deposit \$100 into a bank account paying 4% interest, compounded monthly. How much will the deposit be worth in 23 months (i.e., at the end of the 2 years)?
3. Suppose that every month of those two years you deposit \$100 into a bank account paying 4% interest, compounded monthly. How much money will be in the account at the end of the 2 years?