

## Becker-Recursive Sequences

### Savings Problem: Who will get there first?

6 small groups ( 4-5 students per group)

Goal: Who will reach their goal of \$500 sooner?

Problems:

1. You decide that it is about time you start saving your money for the future, after all, you plan to move out of your parents' house sometime within the next 10 years. You know that you have a couple options of investment and want to save as much money as you can. You have \$100 from a summer job that you can put into a savings account right away, and plan on adding a constant amount each month from your yard work job. How many months will it take you to save to \$500 if you continue to add the same amount each month?

(Roll both dice to determine what amount you will add to your account each month.)

Hint: Find the explicit recursive formula for the balance of your savings account.

2. You decide that it is about time you start saving your money for the future, after all, you plan to move out of your parents' house sometime within the next 10 years. You know that you have a couple options of investment and want to save as much money as you can. You have \$100 from a summer job that you can put into a savings account right away, but don't feel like saving any more of your spending money than you have to. Shopping trips are much more fun! How long will it take you to save to \$500 if you never add any more money to the account? Find the time in months.

(Roll the dice to see what your monthly interest rate is. The number you roll will be the percent interest.)

Hint: Find the explicit recursive formula for the balance of your savings account.

#### **Bonus Question:**

If you add \$10 a month to the \$100 and have the same interest rate, how much money will you save in the same time as the problem above?