MA 110 Annuities
Section 3.3

An **annuity** is any sequence of equal periodic payments. An annuity is called **ordinary** when the payments are made at the **end** of each time interval.

An example of an ordinary annuity:

1. In order to save for their baby's education, new parents start saving $1000 at the end of each quarter in a fund that earns 6% compounded quarterly. To see how this works, fill in the information for the first year of the ***balance sheet*** below to determine how much is in the account at the end of the year.

Period	**Payment**	**Interest**	**Balance**
1	$1000	$0.00	$1000
2	$1000		
3	$1000		
4	$1000		

2. We can more easily determine how much money will be in the account after one year by using the TVM Solver.

N =
I% =
PV =
PMT =
FV =
P/Y =
C/Y =
PMT: END

3. The parents continue saving in this way until the child is 18.

(a) How much money will be in the account at that time?

N =
I% =
PV =
PMT =
FV =
P/Y =
C/Y =
PMT: END

(b) How much interest was earned during the 18-year period?

OVER →

4. Suppose the child gets a scholarship and doesn't need the money yet. If the

parents stop adding money to the account each quarter but leave the above balance in the account until their child is 25, how much money will the account have at that time? *Note: The investment from this point is not an annuity – it is just compound interest.*

N =
I% =
PV =
PMT =
FV =
P/Y =
C/Y =
PMT: END

5. Some other new parents read an article in a parenting magazine about the rising cost of college education. They read that they would need $210,000 for their child's college education by the time their little one is 18. They find an account paying 4.8% compounded monthly. How much money would they have to deposit each month, after the birth of their child, at this rate of interest, to make this goal?

N =
I% =
PV =
PMT =
FV =
P/Y =
C/Y =
PMT: END

6. You are also going to invest money in an account paying 4.8% compounded monthly. Suppose you have decided you can save $200 per month.

(a) How long will it take for your account to grow to $100,000?

N =
I% =
PV =
PMT =
FV =
P/Y =
C/Y =
PMT: END

(b) How much interest will the account earn over that time period?