MA 110 SECTION 3.3 ANNUITIES
HOMEWORK: 1, 3, 9, 13, 23, 25, 27, 31, 33, 37
Go back to Section 3.2: 51, 57, 75, 77, 83, 91, 93

1. 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.

2. An example of an ordinary annuity:
New parents start saving $250 at the end of each month in an UGMA fund that earns 9% compounded monthly. If this savings plan is followed for 6 years, how much will be in the account (when the child is age 6)?

3. Due to the complexity of the annuity formula, we will use the financial applications that are programmed into our calculators. To use the financial applications

TI-83 2^{ND} X^{-1} (FINANCE) **TI-84 & TI-83 PLUS APPS button then select #1: FINANCE**

ON BOTH MODELS
select 1: TVM Solver You should see a screen similar to the following (marked A) – don't worry if your numbers do not match the ones below.

```
N=0
I%=0
PV=0
PMT=0
FV=0
P/Y=1
C/Y=1
PMT:END BEGIN
```

PV = initial account balance (Present Value) (enter as zero or a negative number)
FV = future value of the annuity
PMT = amount of each payment (enter as a negative number)
I% = interest rate per period (in whole number form)
N = number of interest periods total
P/Y = number of payments per year
C/Y = sets itself automatically
PMT: END BEGIN – always set to end

To solve the problem, you need to input appropriate values and then select and activate the solve function for the unknown value.

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

4. When the child is 6 years old, the parents plan to stop depositing money into the account. How much will the above balance grow to by the time the child is 18? *Note: The investment from this point is not an annuity – it is just compound interest.*

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

5. How much would the parents save if they keep depositing $250 a month until their child was 18?

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

6. The 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. If the parents deposit $250 a month at 9% compounded monthly from their child's birth, how old will the "child" be when the account accumulates to $210,000?

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

7. How much interest is earned in the last year?

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

8. How much money would the parents have to deposit each month if they wanted to save $210,000 by the time their child is 18?

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

9. What monthly interest is needed to accumulate $210,000 if the parents can only afford to deposit $250 each month for 18 years?

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