7.6 Future Value of an Ordinary Annuity

Define:

Annuity: - a series of equal deposits or payments made at regular intervals.

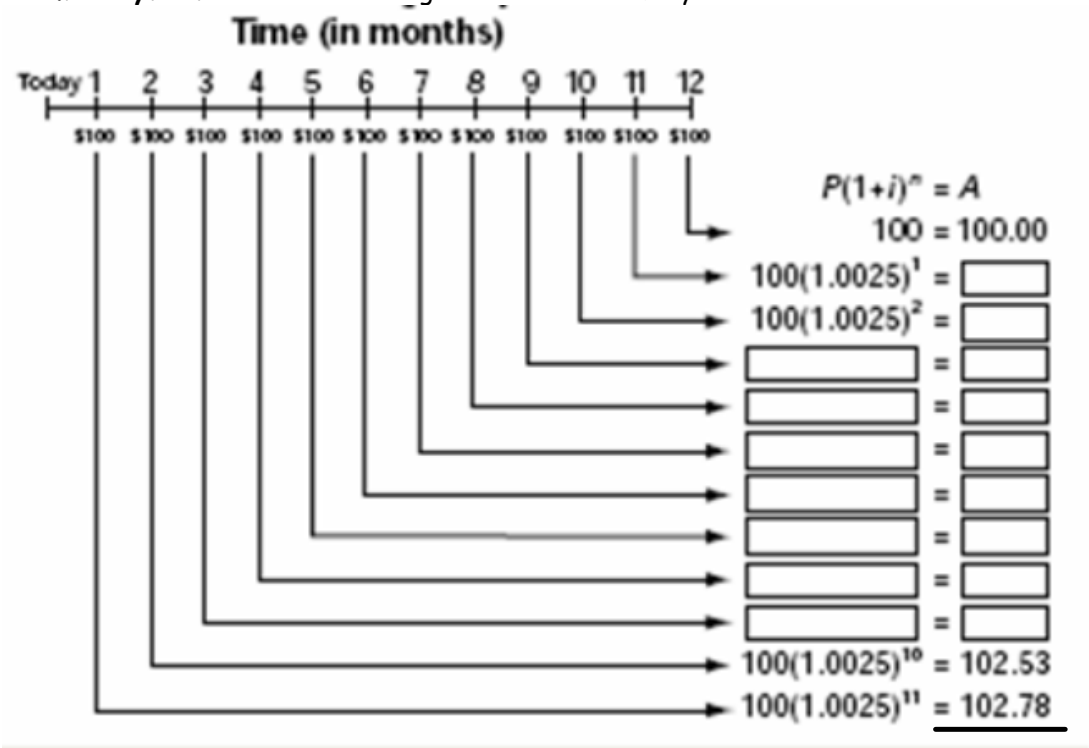
Simple Annuity: - is an annuity in which the payments coincide with the compounding period.

Ordinary annuity: - is an annuity in which the payments are made at the end of each interval.

Solve an Annuity Problem:

Method 1: Use a time line diagram

Kira deposits $100 at the end of each month into a savings account that earns 3%/a compounded monthly. What will her savings be at the end of 1 year?



Total

<u>Method 2</u>: Use a Formula

Kira deposits $100 at the end of each month into a savings account that earns 3%/a compounded monthly. What will her savings be at the end of 1 year?

$$A = \frac{R[(1+i)^n - 1]}{i}$$

where A is the future Amount in $
R is the regular deposit
i is interest rate per period
n is total the number of deposits

Method 3: Use a Graphing Calculator

Kira deposits $100 at the end of each month into a savings account that earns 3%/a compounded monthly. What will her savings be at the end of 1 year?

Step 1: Press MODE and set the number of decimal places to 2:

Step 2: Press APPS 1 1 to open the TVM Solver:

Step 3: Enter the values of the variables as shown.

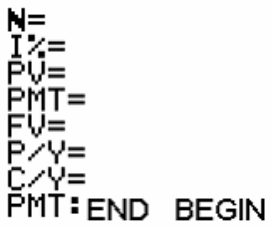
What the variables represent:

N (Number of Payments)
I% (Annual Interest Rate)
PV (Present Value)
PMT (Payment)
FV (Future Value)
P/Y (Number of Payments/Year)
C/Y (Number of Compounding Periods/Year)
PMT: END BEGIN (Payments at End of Payment Interval)

Will always match while doing simple annuities

PMT is negative, because money is being paid out.
FV=0.00 because that is the variable to be solved for.

Step 4: Cursor to FV=0.00, and then, press ALPHA ENTER to solve for FV:



HMWK:

p 498 # 4, 5, 7, 10, 12

*** Multi Step***

2, 9, 11, 17