**Homework: Practice Worksheet + pg 511 # 1c, 2abc, 3, 5cd, 6a, 7ad, 8, 9, (10), (14)**

**Future Value Annuities**

Suppose that instead of making a one-time deposit into a savings account, we make several regular deposits at scheduled intervals into an account that grows as interest accumulates. Pensions often follow this model; this is referred to as a \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_.

**Example 1**

Consider the scenario where we invest $1000 at the end of each year for 5 years. The account earns 8% interest compounded annually.

Note: When the payments are made at the end of each period, it is referred to as an \_\_\_\_\_\_\_\_\_\_\_\_ annuity (type of future value annuity).

Time (years) 1 2 3 4 5 Future Value

A =

(future value)

Use the solution from the previous equation to create an equation for the value of a future value annuity where:

* ‘A’ is the future value of the account.
* ‘R’ are the regular payments.
* ‘i’ is the interest rate earned at each period.
* ‘n’ is the number of deposits or the number of interest payment collections.

**Example 2**

Kylo Ren would like to retire in 25 years. He sets up a plan such that he makes $500 payments each month into an account that earns 6%/a compounded monthly. How much will this account be worth in 25 years when he retires?

Modify the future value annuity equation to isolate it for ‘R’.

**Example 3**

Princess Leia would like to retire in 30 years with a lump sum of 2 million dollars. How much money will she need to deposit into her pension plan each month if she thinks that she can earn 8%/a from the Rebel Alliance Investors?