

The Conditions of an Annuity

Source: McGraw Hill Ryerson: Foundations for College Mathematics 12

Conditions such as the term of an annuity and the frequency of the payments are sometimes within your control.

The change in one or more of the conditions of the annuity affects the future value, the present value, and the payment amount.

Investigation 1:

Angela is considering two investment options for saving \$500/month.

Option 1: monthly payment of \$500, invested at 6% per year, compounded monthly

Option 2: semi-monthly payments of \$250, invested at 5.85% per year, compounded semi-monthly

1. How much money would Angela invest in one year?
2. Determine the future value of each investment option after one year.
3. Which investment option has a greater future value? How much interest does this option earn?
4. Assume that the interest rate and the payment remain the same for the investment option in step 3. Determine the future value of this investment option in 10 years.
5. What factors affect the future value of an investment?

Investigation 2

Jack needs to repay a \$1500 loan. His bank offers personal loans for one to five years at 8.5% per year, compounded monthly.

1. Jack can afford to make monthly payments of \$80. How many months will it take him to repay the loan?
2. What is the monthly payment if he selects a 1 year term?
3. What is the monthly payment if he selects a 2 year term?
4. What factors may influence his decision?