

## MODULE 7.2 – FUNDAMENTALS OF ANNUITIES

### LEARNING OBJECTIVES

Important Topics of this Section:

- Definition of Annuities
- Ordinary Annuity Future Values
- Annuity Due Future Values

### What are Annuities?

- State the definition of an annuity.

### Ordinary Annuities

- Write down the formula and define each variable for Ordinary Annuity Future Value.



**How It Works** There is a five-step process for calculating the future value of any ordinary annuity.

### Annuities Due

- Write down the formula and define each variable for Annuity Due Future Value.

## MODULE 7.2 - CLASS NOTES

Determine if the following are annuities.

1. A debt of four payments of \$500 due in 6 months, 12 months, 18 months, and 24 months.
2. Contributions to an RRSP of \$200 every month for the first year followed by \$200 every quarter for the second year.
3. A financial adviser is reviewing one of her client's accounts. The client has been investing \$1,000 at the end of every quarter for the past 11 years in a fund that has averaged 7.3% compounded quarterly. How much money does the client have today in the account?
4. A savings annuity already contains \$10,000. If an additional \$250 is invested at the end of every month at 9% compounded semi-annually for a term of 20 years, what will be the maturity value of the investment?
5. The Set for Life instant scratch n' win ticket offers players a chance to win \$1,000 per week for the next 25 years starting immediately upon validation. If a winner was to invest all of his money into an account earning 5% compounded annually, how much money would he have at the end of his 25-year term? Assume each year has exactly 52 weeks.

For the following, determine the type of annuity.

6. 

Compounding Frequency	Payment Frequency	Payment Timing
Quarterly	Semi-annually	Beginning

7. 

Compounding Frequency	Payment Frequency	Payment Timing
Semi-annually	Semi-annually	Beginning

8. A \$2,000 loan at 7% compounded quarterly is taken out today. Four quarterly payments of \$522.07 are required. The first payment will be three months after the start of the loan. Draw an annuity timeline and determine the annuity type.

For the following, calculate the future value.

9. 

Present Value	Interest Rate	Payments	Timing of Payment	Years
\$0	7% quarterly	\$2,000 quarterly	Beginning	10

10. 

Present Value	Interest Rate	Payments	Timing of Payment	Years
\$15,000	5.6% quarterly	\$3,000 annually	End	30