

# Oct. 1 Worksheet

1. What do the following terms mean?

Annuity

Payment period

Term of annuity

Ordinary annuities

2. \$1200 is deposited at the end of each year for the next 5 years in a savings account paying 6% interest compounded annually. Find the future value of this annuity. (Ordinary Annuity)

Year	Balance @ Start of Period	Compounding	Compound Amount	End of Year Payment	End of Year Balance
1					
2					
3					
4					
5					

3. What is the formula for the future value of an Ordinary Annuity? What are the formulas to use for Excel to find future value, payment, and rate?

4. A recent college graduate starts their first full-time job and decides to save for a down payment on a house. They deposit \$12,000 at the end of each year for 5 years into a high-yield savings account. The account pays an annual interest rate of 3.5% compounded annually. How much will they have saved after 5 years?

5. Tom opened a savings account at a new online bank on January 1, 2024. The bank offers a fixed annual interest rate of 2.16%, compounded monthly. Tom contributed \$450 a month to the account. What will be the total value of his account after 8 years?

6. Suppose after 8 years, Tom decided to invest that money into a different account and kept the monthly contribution as \$450. If the interest rate is 2.79% and compounding frequency remains monthly, how much will he have in the account after an additional 4 years?

7. A business sets up a sinking fund to pay off bonds that it has issued when they mature. It deposits \$15,000 at the end of each quarter into an account that earns 4.8% interest, compounded quarterly. How much will be in the sinking fund after 8 years?

8. A company takes out a loan of \$2 million to expand its manufacturing plant; the loan requires them to set up a sinking fund to pay off the principal in 10 years. If the fund earns 5.5% interest, compounded annually, what is the payment the company should make at the end of each year?

9. As an incentive for a valued employee to remain on the job, a company plans to offer her a \$50,000 bonus, payable when she retires in 15 years. If the company deposits \$150 a month into a sinking fund, what interest rate must it earn, with monthly compounding, in order to guarantee that the fund will be worth \$50,000 in 15 years?