3.4 Explore Compound Interest Notes

Miller Financial Math

Objective:_____

_____

_____

Key Terms:

Compound interest

Annual compounding

Semiannual compounding

Quarterly compounding

Daily compounding

Crediting

What is compound interest?

- Could interest be compounded every hour?
- How many hours are in a year?
- Could interest be compounded every minute?

Example 1

How much interest would $1,000 earn in one year at a rate of 6%, compounded annually? What would be the new balance?

CHECK YOUR UNDERSTANDING

How much would *x* dollars earn in one year at a rate of 4.4% compounded annually?

Example 2

Maria deposits $1,000 in a savings account that pays 6% interest, compounded semiannually. What is her balance after one year?

CHECK YOUR UNDERSTANDING

Alex deposits $4,000 in a savings account that pays 5% interest, compounded semiannually. What is his balance after one year?

EXAMPLE 3

How much interest does $1,000 earn in three months at an interest rate of 6%, compounded quarterly? What is the balance after three months?

CHECK YOUR UNDERSTANDING

How much does $3,000 earn in six months at an interest rate of 4%, compounded quarterly?

EXAMPLE 4

How much interest does $1,000 earn in one day at an interest rate of 6%, compounded daily? What is the balance after a day?

Example 5

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Jennifer has a bank account that compounds interest daily at a rate of 3.2%. On July 11, the principal is $1,234.98. She withdraws $200 for a car repair. She receives a $34 check from her health insurance company and deposits it. On July 12, she deposits her $345.77 paycheck. What is her balance at the end of the day on July 12?

Date	July 11	July 12
Opening balance	$1,234.98	
Deposit (+)	$34.00	$345.77
Withdrawal (−)	$200.00	
Principal used to compute interest		
Day's interest rounded to the nearest cent		
Ending balance		

Date	July 11	July 12
Opening Balance	$1,234.98	
Deposit (+)	$34.00	$345.77
Withdrawal (−)	$200.00	
Principal used to compute interest	$1,068.98	
Day's interest rounded to the nearest cent	$0.09	
Ending balance	$1,069.07	

Date	July 11	July 12
Opening Balance	$1,234.98	$1,069.07
Deposit (+)	$34.00	$345.77
Withdrawal (−)	$200.00	—
Principal used to compute interest	$1,068.98	$1,414.84
Day's interest rounded to the nearest cent	$0.09	$0.12
Ending balance	$1,069.07	$1,414.96

CHECK YOUR UNDERSTANDING

On January 7, Joelle opened a savings account with $900. It earned 3% interest, compounded daily. On January 8, she deposited her first paycheck of $76.22. What was her balance at the end of the day on January 8?

Closure: How might these words apply to what you learned in this lesson?

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