How can I calculate monthly compound interest in Excel?

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June 28, 2024

To calculate monthly compound interest in Excel, use the formula =P*(1+r)^n, where P is the principal amount, r is the monthly interest rate, and n is the number of months. This will give you the total amount including interest. To calculate just the interest amount, use the formula =P*((1+r)^n-1). Make sure to format the cells as currency for accurate results. Additionally, you can use the built-in function PMT to calculate the monthly payment for a loan with compound interest.

Calculate Monthly Compound Interest in Excel

We can use the following formula to find the ending value of some investment after a certain amount of time:

A = P(1 + r/n)nt

where:

A: Final AmountP: Initial Principalr: Annual Interest Raten: Number of compounding periods per yeart: Number of years

If the investment is compounded monthly, then we can use 12 for *n*:

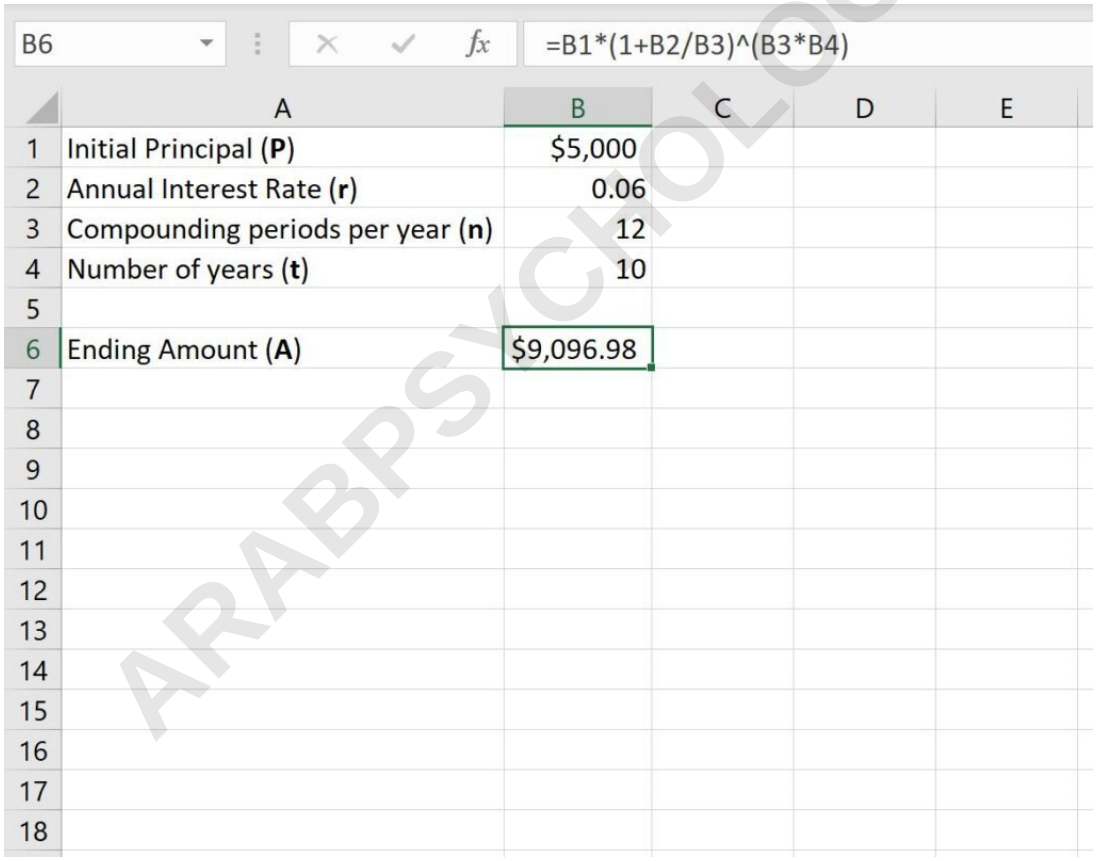
A = P(1 + r/12)12t

The following example shows how to use this formula in Excel to calculate the ending value of some investment that has been compounded monthly.

Example: Monthly Compound Interest Formula in Excel

Suppose we invest $5,000 into an investment that compounds at a rate of 6% annually. Assume the investment compounds on a monthly basis.

The following screenshot shows how to use the compound interest formula in Excel to calculate the ending value of this investment after 10 years:



This investment will be worth $9,096.98 after 10 years.

The following screenshot shows how to calculate the

ending investment after each year during the 10-year period.

Note: Column F shows the formula we used in each corresponding cell in Column E:

	A	B	C	D	E	F
1	Initial Principal (**P**)	$5,000		**Year**	**Ending Amount**	*Formula Used*
2	Annual Interest Rate (**r**)	0.06		1	$5,308.39	=B1*(1+B2/B3)^(B3*D2)
3	Compounding periods per year (**n**)	12		2	$5,635.80	=E2*(1+$B$2/$B$3)^($B$3)
4	Number of years (**t**)	10		3	$5,983.40	=E3*(1+$B$2/$B$3)^($B$3)
5				4	$6,352.45	=E4*(1+$B$2/$B$3)^($B$3)
6	Ending Amount (**A**)	$9,096.98		5	$6,744.25	=E5*(1+$B$2/$B$3)^($B$3)
7				6	$7,160.22	=E6*(1+$B$2/$B$3)^($B$3)
8				7	$7,601.85	=E7*(1+$B$2/$B$3)^($B$3)
9				8	$8,070.71	=E8*(1+$B$2/$B$3)^($B$3)
10				9	$8,568.50	=E9*(1+$B$2/$B$3)^($B$3)
11				10	$9,096.98	=E10*(1+$B$2/$B$3)^($B$3)
12						
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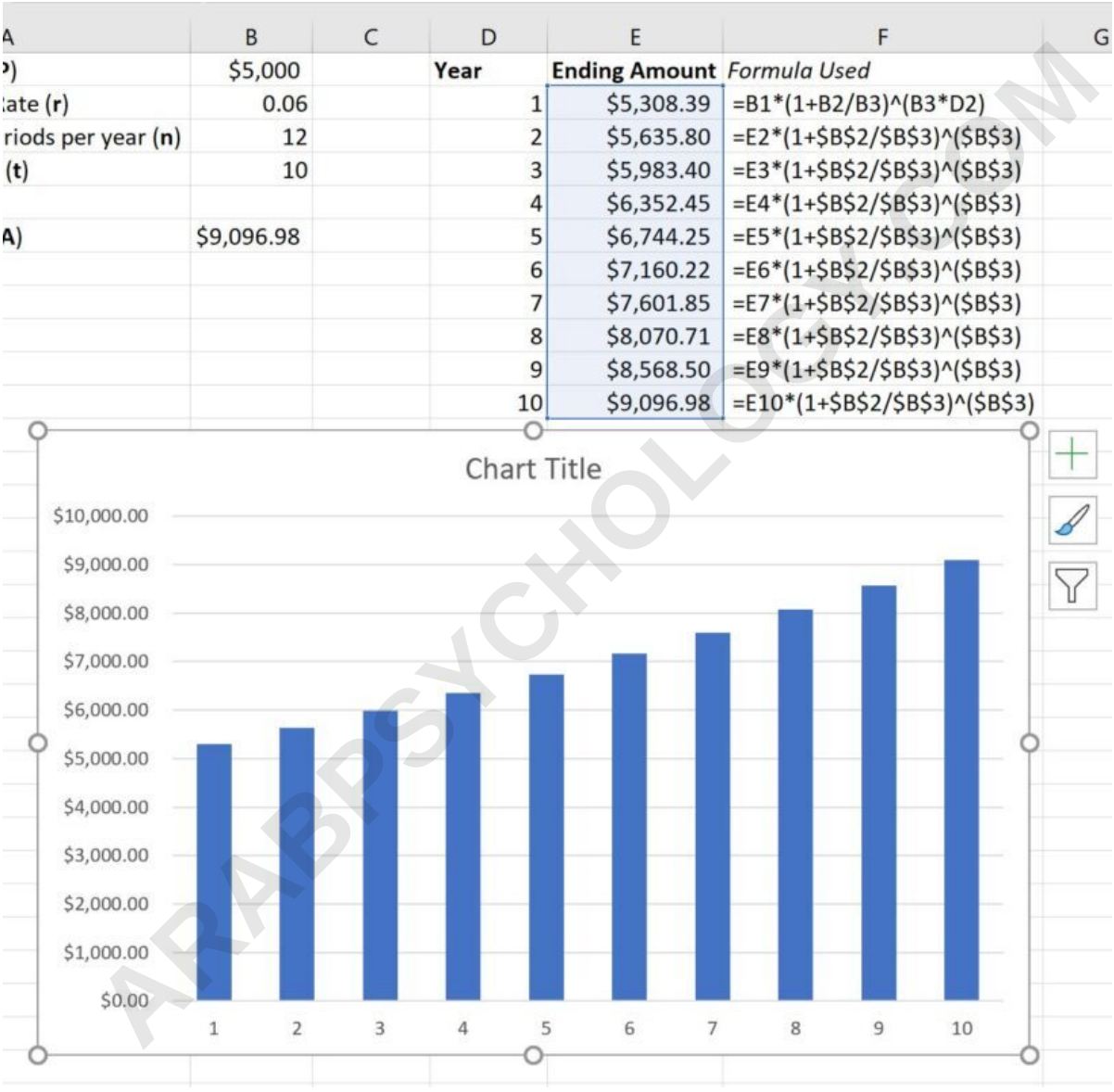
From the output we can see:

At the end of year 1, the investment is worth $5,308.39.At the end of year 2, the investment is worth $5,635.80.At the end of year 3, the investment is worth $5,983.40.

To visualize the investment growth over time, highlight

the cells in the range E2:E11, then click the Insert tab along the top ribbon, then click the 2-D Column Chart option with the Charts group:



A	B	C	D	E	F	G
?)	$5,000		Year	Ending Amount	*Formula Used*	
ate (r)	0.06		1	$5,308.39	=B1*(1+B2/B3)^(B3*D2)	
riods per year (n)	12		2	$5,635.80	=E2*(1+$B$2/$B$3)^($B$3)	
(t)	10		3	$5,983.40	=E3*(1+$B$2/$B$3)^($B$3)	
			4	$6,352.45	=E4*(1+$B$2/$B$3)^($B$3)	
A)	$9,096.98		5	$6,744.25	=E5*(1+$B$2/$B$3)^($B$3)	
			6	$7,160.22	=E6*(1+$B$2/$B$3)^($B$3)	
			7	$7,601.85	=E7*(1+$B$2/$B$3)^($B$3)	
			8	$8,070.71	=E8*(1+$B$2/$B$3)^($B$3)	
			9	$8,568.50	=E9*(1+$B$2/$B$3)^($B$3)	
			10	$9,096.98	=E10*(1+$B$2/$B$3)^($B$3)	

The x-axis shows the year and the height of the bars represent the investment value at the end of each year.

Additional Resources

The following tutorials explain how to perform other common tasks in Excel: