How can I calculate daily compound interest in Excel?

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To calculate daily compound interest in Excel, the following steps can be followed:

1. Begin by entering the initial principal amount in a cell, labeled as "Principal."
2. In the cell next to it, labeled as "Rate," enter the annual interest rate in decimal form (for example, 0.05 for 5%).
3. In another cell, labeled as "Periods," enter the number of days for which the interest will be compounded.
4. Next, in a separate cell, enter the formula "=Daily(Principal, Rate, Periods)" to calculate the daily interest.
5. The result will be the daily compound interest amount. To calculate the total compound interest for a specific period, simply multiply this daily interest amount by the number of days in that period.

It is important to note that this formula assumes that the interest is compounded daily. If the compounding period is different (e.g. monthly or quarterly), the formula will need to be adjusted accordingly. Additionally, it is recommended to use the "ROUND" function to round the result to the desired number of decimal places.

This method can be useful for individuals, businesses, and financial institutions to accurately calculate the interest earned or paid on a daily basis, providing a more precise understanding of the financial impact.

Calculate Daily 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 daily, then we can use 365 for *n*:

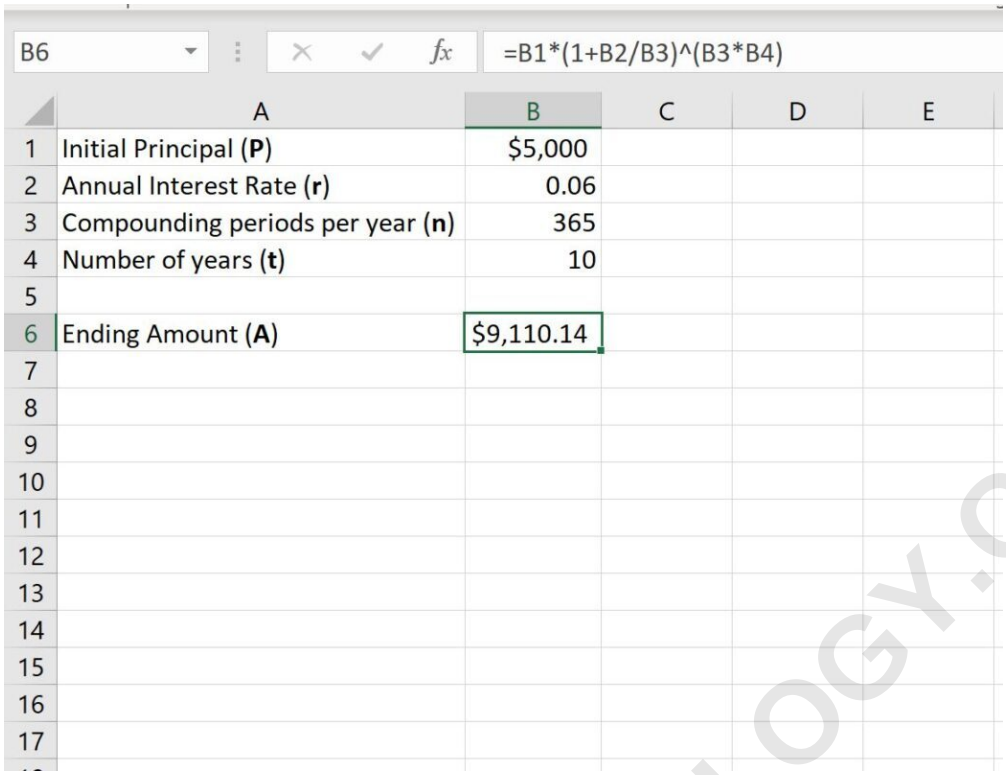
A = P(1 + r/365)365t

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

Example: Daily 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 daily 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:



B6 =B1*(1+B2/B3)^(B3*B4)

	A	B	C	D	E
1	Initial Principal (**P**)	$5,000			
2	Annual Interest Rate (**r**)	0.06			
3	Compounding periods per year (**n**)	365			
4	Number of years (**t**)	10			
5					
6	Ending Amount (**A**)	$9,110.14			
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This investment will be worth $9,110.14 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	$5,309.16	=B1*(1+B2/B3)^(B3*D2)
3	Compounding periods per year (**n**)	365		2	$5,637.43	=E2*(1+$B$2/$B$3)^($B$3)
4	Number of years (**t**)	10		3	$5,986.00	=E3*(1+$B$2/$B$3)^($B$3)
5				4	$6,356.12	=E4*(1+$B$2/$B$3)^($B$3)
6	Ending Amount (**A**)	$9,110.14		5	$6,749.13	=E5*(1+$B$2/$B$3)^($B$3)
7				6	$7,166.44	=E6*(1+$B$2/$B$3)^($B$3)
8				7	$7,609.55	=E7*(1+$B$2/$B$3)^($B$3)
9				8	$8,080.05	=E8*(1+$B$2/$B$3)^($B$3)
10				9	$8,579.65	=E9*(1+$B$2/$B$3)^($B$3)
11				10	$9,110.14	=E10*(1+$B$2/$B$3)^($B$3)
12						
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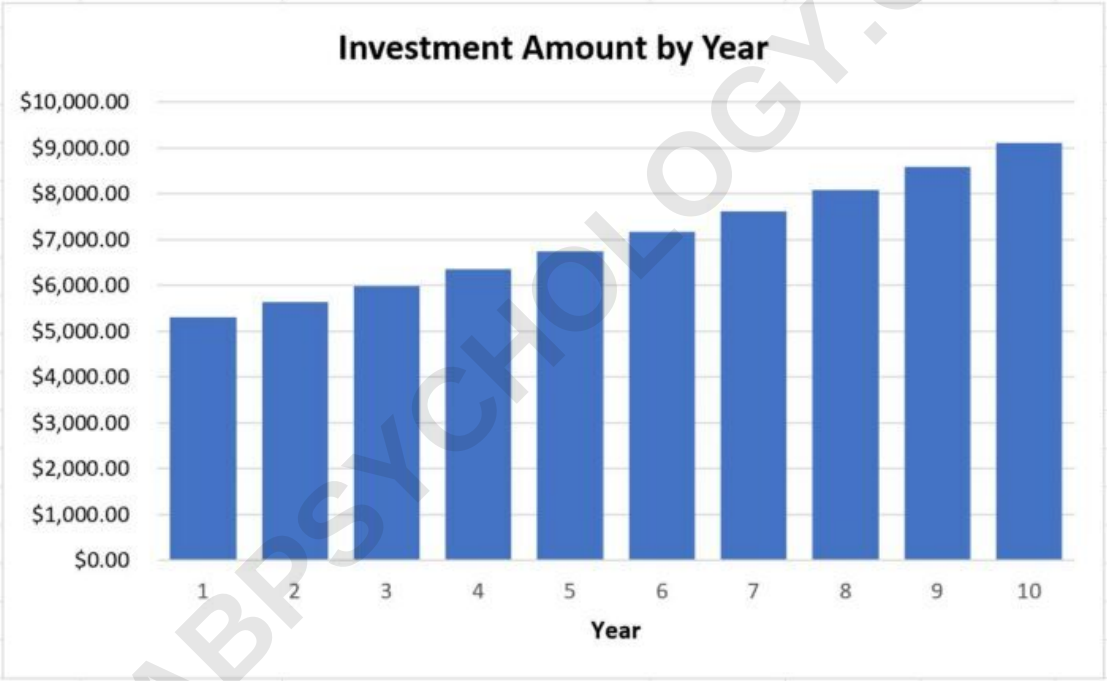
From the output we can see:

At the end of year 1, the investment is worth $5,309.16.At the end of year 2, the investment is worth $5,637.43.At the end of year 3, the investment is worth $5,986.00.

To visualize the investment growth over time, simply 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:

Year	Ending Amount	*Formula Used*
1	$5,309.16	=B1*(1+B2/B3)^(B3*D2)
2	$5,637.43	=E2*(1+$B$2/$B$3)^($B$3)
3	$5,986.00	=E3*(1+$B$2/$B$3)^($B$3)
4	$6,356.12	=E4*(1+$B$2/$B$3)^($B$3)
5	$6,749.13	=E5*(1+$B$2/$B$3)^($B$3)
6	$7,166.44	=E6*(1+$B$2/$B$3)^($B$3)
7	$7,609.55	=E7*(1+$B$2/$B$3)^($B$3)
8	$8,080.05	=E8*(1+$B$2/$B$3)^($B$3)
9	$8,579.65	=E9*(1+$B$2/$B$3)^($B$3)
10	$9,110.14	=E10*(1+$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: