

**Question:** I'm going to plan a holiday, and I'd like to save \$10,000 to cover all expenses. How do I figure out how much I need to pay into my savings each month to get to my target?

**Answer:** The PMT function can help

**Process (Excel 2003 and 2007):**

When it comes to finance, personal or business, knowing what you're paying or how much you're spending is paramount. Knowing how you can save money by adjusting your payments is a very handy thing, and we can use the PMT function to not only work this out, but see what we would have to pay before we enter into a loan agreement.

The PMT function has the following syntax:

**=PMT(rate,nper,pv,[fv],[type])**

**Rate:** this is the interest rate to be paid per period

**Nper:** this is the number of periods in the life of the loan (i.e. the number of payments to be made)

**Pv:** the present value of the loan amount

**[Fv]:** the future value (optional)

**[Type]:** shows whether payment is to be made on the first day or the last day of the month

In this example, we're going planning to go on an overseas holiday in three years time. In order to do this, we'll need to save \$10,000 to cover costs of flights, accommodation etc. So how much will I need to pay into my savings account, at a set interest rate, each month for three years to get to my target?

	A	B	C	D	E
1		PMT Function	=pmt(rate,nper,pv,[fv],[type])		
2					
3		Savings Target	10 000		
4		Saving Years	5		
5		Interest Rate	12%		
6		Currently Saved	0		
7					
8		Interest Rate	No. of Payments	Present Value	Monthly
9		Rate	NPER	PV	Repayment
10					
11					

1. Select cell **B10**, type in **=C5/12** and press **Enter**

	A	B	C	D
1		<b>PMT Function</b>	=pmt(rate,nper,pv,[fv],[type])	
2				
3		<b>Savings Target</b>	10 000	
4		<b>Saving Years</b>	5	
5		<b>Interest Rate</b>	12%	
6		<b>Currently Saved</b>	0	
7				
8		<b>Interest Rate</b>	<b>No. of Payments</b>	<b>Present Value</b>
9		Rate	NPER	PV
10		=C5/12		
11				

In order to work out the amount per period, we need to divide the yearly interest rate (12%) by the number of periods in the year. In this case, we're making deposits on a monthly basis, hence dividing the rate by 12.

2. Select cell **C10**, type in **=C4\*12** and press **Enter**.

	A	B	C	D
1		<b>PMT Function</b>	=pmt(rate,nper,pv,[fv],[type])	
2				
3		<b>Savings Target</b>	10 000	
4		<b>Saving Years</b>	5	
5		<b>Interest Rate</b>	12%	
6		<b>Currently Saved</b>	0	
7				
8		<b>Interest Rate</b>	<b>No. of Payments</b>	<b>Present Value</b>
9		Rate	NPER	PV
10		0.01	=C4*12	
11				
17				

The savings plan is over 3 years, with payments made monthly. Therefore we need to work out the total number of periods, hence multiplying the loan years by 12.

3. Select cell **D10**, type in **0** and press **Enter**.

	A	B	C	D	E
1		<b>PMT Function</b>	=pmt(rate,nper,pv,[fv],[type])		
2					
3		<b>Savings Target</b>	10 000		
4		<b>Saving Years</b>	5		
5		<b>Interest Rate</b>	12%		
6		<b>Currently Saved</b>	0		
7					
8		<b>Interest Rate</b>	<b>No. of Payments</b>	<b>Present Value</b>	<b>Monthly Rate</b>
9		Rate	NPER	PV	Rate
10		0.01	60	0	
11					
17					

There isn't a present value amount - we have no savings to start with. Hence, PV = 0.

4. Select cell **E10**, type `=pmt(B9,C9,D9,C3)` and press **Enter**

	A	B	C	D	E
1		PMT Function	=pmt(rate,nper,pv,[fv],[type])		
2					
3		Savings Target	10 000		
4		Saving Years	5		
5		Interest Rate	12%		
6		Currently Saved	0		
7					
8		Interest Rate	No. of Payments	Present Value	Monthly
9		Rate	NPER	PV	Repayment
10		0.01	60		=PMT(B10,C10,D10,C3)

The formula references the interest rate for the period (*rate* = **B10**), the number of periods (*nper* = **C9**) and the present value of the loan (*pv* = **0**). Since we're trying to determine payments against a future amount, we can now use the *[fv]* option - choose the future value we'd like to work to (in this case, cell **C3**)

	8	Interest Rate	No. of Payments	Present Value	Monthly
	9	Rate	NPER	PV	Repayment
	10	0.01	60	0	-\$122.44

The amount is represented as a negative figure because this is money that you will be paying out. If you would like to see it as a positive number, simply multiply the result by -1. However, what if we actually began our savings plan with \$2,500 in the bank?

5. Select cell **C6** (the currently saved field), type in -2500 and press **Enter**

	A	B	C
1		PMT Function	=pmt(rate,nper,pv,[fv],[ty
2			
3		Savings Target	10 000
4		Saving Years	5
5		Interest Rate	12%
6		Currently Saved	2 500
7			

The currently saved amount needs to be entered as a negative: this money is being paid out by you into your savings fund, so it's a negative amount.

6. Select cell **D9**, type in `=C6` and press **Enter**.

	A	B	C	D	E
1		<b>PMT Function</b>	=pmt(rate,nper,pv,[fv],[type])		
2					
3		<b>Savings Target</b>	10 000		
4		<b>Saving Years</b>	5		
5		<b>Interest Rate</b>	12%		
6		<b>Currently Saved</b>	-2 500		
7					
8		<b>Interest Rate</b>	<b>No. of Payments</b>	<b>Present Value</b>	<b>Monthly</b>
9		Rate	NPER	PV	<b>Repayment</b>
10		0.01	60	-2 500	-\$66.17

By including the currently saved amount (i.e. the present value), you have now added extra money to your plan, and significantly affected your repayments for the better.

If you have any suggestions for an Excel Tips & Tricks topic, or you would like help with a particular function, please email [enablement@alchemex.com](mailto:enablement@alchemex.com) and yours could be the next Tip Of The Week.

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