A brief introduction of PMT, IPMT and PPMT Excel functions
In Excel, the **PMT** function returns the payment amount for a loan based on an interest rate and a *constant* payment schedule.

The syntax for the **PMT** function is:

`PMT( interest_rate, number_payments, PV, [FV], [Type] )`
• *interest_rate* is the interest rate for the loan.
• *number_payments* is the number of payments for the loan.
• *PV* is the present value or principal of the loan.
• *FV* is optional. It is the future value or the loan amount outstanding after all payments have been made. If this parameter is omitted, the PMT function assumes a *FV* value of 0.
• *Type* is optional. It indicates when the payments are due. *Type* can be one of the following values:

• If the *Type* parameter is omitted, the PMT function assumes a *Type* value of 0.

<table>
<thead>
<tr>
<th>Value</th>
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</tr>
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<tbody>
<tr>
<td>0</td>
<td>Payments are due at the end of the period. (default)</td>
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• **Applies To:**

• **Type of Function:**
Worksheet function (WS)
VBA function (VBA)
Worksheet Function Example

• Let's take a look at an example to how you would use the **PMT** function in a worksheet:

• This first example returns the *monthly* payment on a $5,000 loan at an annual rate of 7.5%. The loan is paid off in 2 years (ie: 2 x 12). All payments are made at the *beginning* of the period.

• \[=\text{PMT}(7.5\%/12, \, 2\times12, \, 5000, \, 0, \, 1)\]
Worksheet Function Example

• This next example returns the weekly payment on a $8,000 loan at an annual rate of 6%. The loan is paid off in 4 years (ie: 4 x 52). All payments are made at the end of the period.
  • =PMT(6%/52, 4*52, 8000, 0, 0)

• This next example returns the annual payment on a $6,500 loan at an annual rate of 5.25%. The loan is paid off in 10 years (ie: 10 x 1). All payments are made at the end of the period.
  • =PMT(5.25%/1, 10*1, 6500, 0, 0)
Worksheet Function Example

- This final example returns the *monthly* payment on a $5,000 loan at an annual rate of 8%. The loan is paid on for 3 years (ie: 3 x 12) with a **remaining balance** on the loan of $1,000 after the 3 years. All payments are made at the end of the period.
- \(=\text{PMT}(8%/12, 3*12, 5000, -1000, 0)\)
VBA Function Example

• The **PMT** function can also be used in VBA code. For example:
  • Dim LValue As Currency  
  • LValue = Pmt(0.08/12, 3*12, 5000, -1000, 0)
MS Excel: IPMT Function (WS, VBA)

• In Excel, the IPMT function returns the interest payment for an investment based on an interest rate and a constant payment schedule.
• The syntax for the IPMT function is:
• IPMT( interest_rate, period, number_payments, PV, [FV], [Type] )
• `interest_rate` is the interest rate for the investment.
• `period` is the period to calculate the interest rate. It must be a value between 1 and `number_payments`.
• `number_payments` is the number of payments for the annuity.
• `PV` is the present value of the payments.
• `FV` is optional. It is the future value that you'd like the investment to be after all payments have been made. If this parameter is omitted, the `IPMT` function will assume a `FV` of 0.
• *Type* is optional. It indicates when the payments are due. *Type* can be one of the following values:

• If the *Type* parameter is omitted, the IPMT function assumes a *Type* value of 0.

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• **Applies To:**
  • **Type of Function:**
    • Worksheet function (WS)
    • VBA function (VBA)
Worksheet Function

Example

• This first example returns the interest payment for a $5,000 investment that earns 7.5% annually for 2 years. The interest payment is calculated for the 8th month and payments are due at the end of each month.
  • =IPMT(7.5%/12, 8, 2*12, 5000)

• This next example returns the interest payment for a $8,000 investment that earns 6% annually for 4 years. The interest payment is calculated for the 30th week and payments are due at the beginning of each week.
  • =IPMT(6%/52, 30, 4*52, 8000, 0 ,1)
• This next example returns the interest payment for a $6,500 investment that earns 5.25% annually for 10 years. The interest payment is calculated for the 4th year and payments are due at the end of each year.

• =IPMT(5.25%/1, 4, 10*1, 6500)
VBA Function Example

• The **IPMT** function can also be used in VBA code. For example:
  • Dim LNumber As Currency
  • LNumber = IPmt(0.0525/1, 4, 10*1, 6500)
MS Excel: PPMT Function (WS, VBA)

• In Excel, the **PPMT** function returns the *payment on the principal* for a particular payment based on an interest rate and a constant payment schedule.

• The syntax for the **PPMT** function is:

```
PPMT( interest_rate, period, number_payments, PV, [FV], [Type] )
```
• interest_rate is the interest rate for the loan.
• period is the period used to determine how much principal has been repaid. Period must be a value between 1 and number_payments.
• number_payments is the number of payments for the loan.
• PV is the present value or principal of the loan.
• FV is optional. It is the future value or the loan amount outstanding after all payments have been made. If this parameter is omitted, the PPMT function assumes a FV value of 0.
• *Type* is optional. It indicates when the payments are due. *Type* can be one of the following values:

• If the *Type* parameter is omitted, the **PPMT** function assumes a *Type* value of 0.

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• **Applies To:**
• **Type of Function:**
  - Worksheet function (WS)
  - VBA function (VBA)
Worksheet Function

Example

• This first example returns the amount of principal paid off by the payment made in the 5th month of a $5,000 loan with monthly payments at an annual interest rate of 7.5%. The loan is to be paid off in 2 years (ie: 2 x 12). All payments are made at the beginning of the period.
  • =PPMT(7.5%/12, 5, 2*12, 5000, 0, 1)

• This next example returns the amount of principal paid off by the payment made in the 20th week of a $8,000 loan with weekly payments at an annual interest rate of 6%. The loan is to be paid off in 4 years (ie: 4 x 52). All payments are made at the end of the period.
  • =PPMT(6%/52, 20, 4*52, 8000, 0, 0)
This next example returns the amount of principal paid off by the payment made in the 4th year of a $6,500 loan with annual payments at an annual interest rate of 5.25%. The loan is to be paid off in 10 years (ie: 10 x 1). All payments are made at the end of the period.

=PPMT(5.25%/1, 4, 10*1, 6500, 0, 0)

This final example returns the amount of principal paid off by the payment made in the 14th month of a $5,000 loan with annual payments at an annual interest rate of 8%. The loan is to be paid off in 3 years (ie: 3 x 12) with a remaining balance on the loan of $1,000 after the 3 years. All payments are made at the end of the period.

=PPMT(8%/12, 14, 3*12, 5000, 1000, 0)
The **PPMT** function can also be used in VBA code. For example:

- Dim LValue As Currency
- LValue = PPmt(0.08/12, 14, 3*12, 5000, 1000, 0)
Reference


-----By Xiao Yang (ARC BUS Table)