HP 12c Calculator - Interest Rate Conversions

Introduction

This document explains the procedures used to convert between nominal, and annual effective interest rates.

Converting a Nominal Rate to an Effective Rate

Given a nominal interest rate and the number of compounding periods per year, this procedure computes the effective annual interest rate:

1. Press **g**, then **END** and **fCLEARFIN**
2. Key in the annual nominal rate as a percentage, then press **ENTER**
3. Key in the number of compounding periods per year, then press **n**,**[÷]**, then **i**
4. Key in **100** then press **CHS**, **ENTER**, and then **PV**
5. Press **FV**, then **[+]** to obtain the effective annual interest rate

Examples of converting a Nominal Rate to an Effective Rate

Following are examples of converting nominal rates to effective rates compounded quarterly, monthly, and daily.

Example 1

What is the effective annual interest rate if the annual nominal rate of 5¼ % is compounded quarterly?

Key (RPN mode)	Display	Explanation
Press **g**, then **END**		Set to end mode
Press **f**, then **CLEAR FIN**		Clear the financial registers
Type in **5.25**, then press **ENTER**	5.25	Nominal rate
Press **4**, **n**, **[÷]**,then **i**	1.31	Quarterly interest rate
Type **100**, then press **CHS**, then **ENTER**		
Press **PV**, **FV**, then **[+]**	5.35	Percentage effective rate

Example 2

What is the effective annual interest rate if the annual nominal rate of 7% is compounded monthly?

Key (RPN mode)	Display	Explanation
Press **g**, then **END**		Set to end mode

Key (RPN mode)	Display	Explanation
Press **f**, then **CLEAR FIN**		Clear the financial registers
Press **7**, then **ENTER**	7.00	Nominal rate
Press **12**, **n**, **[÷]**, then **i**	0.58	Monthly interest rate
Press **100**, **CHS**, then **ENTER**		
Press **PV**, **FV**, then **[+]**	7.23	Percentage effective rate.

Example 3

What is the effective annual interest rate if the annual nominal rate of 7% is compounded daily?

Key (RPN mode)	Display	Explanation
Press **g**, then **END**		Set to end mode
Press **f**, then **CLEAR FIN**		Clear the financial registers

Key (RPN mode)	Display	Explanation
Press 7, then ENTER	7.00	Nominal rate
Press 365, n, [÷], then i	0.02	Daily interest rate
Press 100, CHS, then ENTER		
Press PV, FV, then [+]	7.25	Percentage effective rate

Converting an Effective Rate to a Nominal Rate

Given an effective interest rate and the number of compounding periods per year, this routine calculates the nominal interest rate.

1. Press f, then CLEAR FIN
2. Key in the number of periods per year, then press n
3. Key in 100, press ENTER, then PV
4. Key in the effective annual rate as a percentage, then press [+], CHS, FV, then i
5. Press RCL, n, then [÷] to obtain the annual nominal rate

Example of converting an Effective Rate to a Nominal Rate

Find the nominal rate if the effective rate is 5.35% compounded quarterly.

Key (RPN mode)	Display	Explanation
Press **f**, then **CLEAR FIN**		Clear the financial registers
Type **4**, press **n**, then **100**		
Press **ENTER**, then **PV**	100.00	
Type **5.35**, press **[+]**, then **CHS**	-105.35	
Press **FV**, then **i**	1.31	Percent quarterly interest rate
Press **RCL**, **n**, then **[÷]**	5.25	Percent nominal interest rate

Converting a Nominal Rate to a continuous Effective Rate

This procedure converts a nominal annual interest rate to the continuous effective rate.

1. Press **1**, then **ENTER**
2. Key in the nominal rate as a percentage then press **[%]**
3. Press **g**, **e^x**, then **Δ%**

Example of Converting a Nominal Rate to a Continuous Effective Rate

What is the effective rate resulting from a 5 ¼% passbook rate with continuous compounding?

Key (RPN mode)	Display	Explanation
Type 1, then press ENTER	1.00	
Type 5.25, then press %	0.05	
Press g, then e^x	1.05	
Press [Δ%]	5.39	Continuous rate