Financial Calculation (TVM) Examples

1. **Simple Interest**
2. **Compound Interest**
3. **Cash Flow (Investment Appraisal)**
4. **Amortization**
5. **Interest Rate Conversion**
6. **Cost, Selling Price, Margin**
7. **Day/Date Calculations**
8. **Depreciation**
9. **Bonds**

1. Simple Interest

Set Up

1. On the Main Menu, select the **TVM** icon.

Execution

2. F1(SMPL) ..... simple interest calculation
3. Set up the calculator for the example.
4. Specify the parameters required for the calculation.
5. F1(SI) ..... simple interest
   F2(SFV) ..... simple future value

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Example **What would the interest amount and principal plus interest be for a loan of $1,500 borrowed for 90 days at an annual rate of 7.25%?**

Use the 360-day mode and two decimal places.

Procedure

① [MENU] TVM

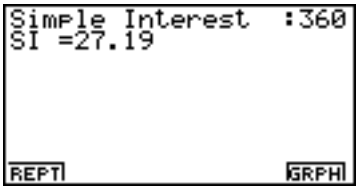
② [F1](SMPL)

③ [CTRL] [F3](SET UP)*1 ▼ [F2](360)
▼ ▼ ▼ ▼ [F1](Fix) [2] [EXE] [ESC]

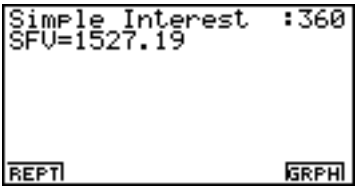
④ [9] [0] [EXE] (n = 90)
[7] [•] [2] [5] [EXE] (I% = 7.25)
[(–)] [1] [5] [0] [0] [EXE] (FV = –1,500)

⑤ [F1](SI)
[F1](REPT)
[F2](SFV)

Result Screen



Calculation Result (SI)



Calculation Result (SFV)

This indicates an interest amount of $27.19 and a principal plus interest amount of $1,527.19.

*1 On the set up screen, specify "**360**" for Date Mode and "**Fix2**" for Display .

2. Compound Interest

Set Up

1. On the Main Menu, select the **TVM** icon.

Execution

2. F2(CMPD) ..... compound interest calculation
3. Set up the calculator for the example.
4. Specify the parameters required for the calculation.
5. F1(n) ..... number of compound periods
   F2(I%) ..... annual interest rate
   F3(PV) ..... present value (loan amount in case of loan; principal in case of savings)
   F4(PMT) ..... payment for each installment (payment in case of loan; deposit in case of savings)
   F5(FV) ..... future value (unpaid balance in case of loan; principal plus interest in case of savings)
   F6(AMT) ..... amortization

■ Savings (standard compound interest)

Input Condition: Future value is greater than present value.

Formula Representation of Input Condition: $PMT = 0$

$|PV| < |FV|$

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Example **Calculate the interest rate required to increase a principal of $10,000 to $12,000 in three years, when compounding is performed semi-annually.**

Procedure

① MENU TVM

② F2(CMPD)

③ CTRL F3(SET UP)*1 F2(End) ▼ F1(365)
▼ ▼ ▼ ▼ F2(Norm) ESC

④ 3 EXE(Input n = 3)
▼
(–) 1 0 0 0 0 EXE(PV = –10,000)
0 EXE(PMT = 0)
1 2 0 0 0 EXE(FV = 12,000)
1 EXE
2 EXE(Semiannual compounding)

⑤ F2(I%)

Result Screen

This indicates an interest rate of at least 6.17% is required.

*1 On the set up screen, specify "**End**" for Payment, "**365**" for Date Mode and "**Norm1**" for Display.

■ Installment savings

Input Condition: Future value is greater than the total of payments.

Formula Representation of Input Condition:

PMT and FV have different signs (positive, negative) when $PV = 0$.

$-FV < n \times PMT$ when $FV > 0$

$-FV > n \times PMT$ when $FV < 0$

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Example **Calculate the interest rate required to have a $2,500 balance in an installment savings account in two years when $100 is deposited each month and interest is compounded semiannually.**

Procedure

① MENU TVM

② F2(CMPD)

③ CTRL F3(SET UP)*1 F2(End) ESC

④ 2 × 1 2 EXE(Input $n = 2 \times 12$.)
▼
0 EXE($PV = 0$)
↔ 1 0 0 EXE($PMT = -100$)
2 5 0 0 EXE($FV = 2{,}500$)
1 2 EXE(Monthly installment)
2 EXE(Semiannual compounding)

⑤ F2(I%)

Result Screen

This indicates an interest rate of at least 4.28% is required.

*1On the set up screen, specify "**End**" for Payment.

■ Loans

Input Condition: Total of payments is greater than loan amount.

Formula Representation of Input Condition:

PMT and PV have different signs (positive, negative) when $FV = 0$.

$-PV > n \times PMT$ when $PV > 0$

$-PV < n \times PMT$ when $PV < 0$

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Example **Calculate the interest rate required to repay a $2,300 balance on a loan in two years paying back $100 per month, when interest is compounded monthly.**

Procedure

① MENU TVM

② F2(CMPD)

③ CTRL F3(SET UP)*1 F2(End) ESC

④ 2 × 1 2 EXE(Input $n = 2 \times 12$.)
▼
2 3 0 0 EXE(PV = 2,300)
(–) 1 0 0 EXE(PMT = –100)
0 EXE(FV = 0)
1 2 EXE(Monthly installment)
(Monthly compounding)*2

⑤ F2(I%)

Result Screen

This indicates an interest rate of 4.11% or less is acceptable.

*1On the set up screen, specify "**End**" for Payment.

*2The P/Y value is also automatically input for C/Y, so input of C/Y can be skipped here.

■ Loan when final installment is greater than other installments

Input Condition: Total of equal amount payments is greater than the difference between the loan amount and final payment amount.

Formula Representation of Input Condition:

PV, PMT, FV do not equal zero.

$PV + FV > -n \times PMT$ when $FV > PV$

$PV + FV < -n \times PMT$ when $FV < PV$

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Example **Calculate the interest rate required to repay a $2,500 balance on a loan in two years (24 installments) paying back $100 per month and a final $200 installment, when interest is compounded monthly.**

Procedure

① MENU TVM

② F2(CMPD)

③ CTRL F3(SET UP)*1 F2(End) ESC

④ 2 × 1 2 EXE(Input $n = 2 \times 12$.)
▼
2 5 0 0 EXE(PV = 2,500)
↔ 1 0 0 EXE(PMT = –100)
↔ 2 0 0 EXE(FV = –200)
1 2 EXE(Monthly installment)
(Monthly compounding)*2

⑤ F2(I%)

Result Screen

This indicates an interest rate of 3.54% or less is acceptable.

*1 On the set up screen, specify "**End**" for Payment.

*2 The P/Y value is also automatically input for C/Y, so input of C/Y can be skipped here.

■ Future value

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Example **Calculate the future value after 7.6 years for a principal of $500 and an interest rate of 6%, compounded annually.**

Procedure

① [MENU] TVM

② [F2](CMPD)

③ [CTRL] [F3](SET UP)*1 [F2](End) [ESC]

④ [7] [•] [6] [EXE] (n = 7.6 years)
[6] [EXE] (I % = 6)
[(–)] [5] [0] [0] [EXE] (PV = –500)
[0] [EXE] (PMT = 0)
[0] [EXE] (FV = 0)
[1] [EXE]
(Annual compounding)*2

⑤ [F5](FV)

Result Screen

This indicates a future value of around $779.

*1On the set up screen, specify "**End**" for Payment.

*2The P/Y value is also automatically input for C/Y, so input of C/Y can be skipped here.

■ Principal

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Example **Calculate the principal required at 5.5%, compounded monthly, to produce a total of $20,000 in a year.**

Procedure

① MENU TVM

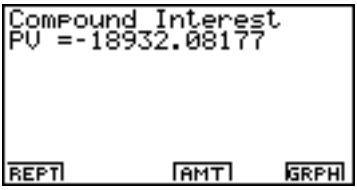
② F2 (CMPD)

③ CTRL F3 (SET UP)*1 F2 (End) ESC

④ 1 EXE (Input n = 1)
5 • 5 EXE (I% = 5.5)
▼
0 EXE (PMT = 0)
2 0 0 0 0 EXE (FV = 20,000)
1 EXE
1 2 EXE (Monthly compounding)

⑤ F3 (PV)

Result Screen



This indicates an initial investment of $18,932 is required.

*1 On the set up screen, specify "**End**" for Payment.

■ Compound interest rate

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Example **Calculate the interest required, compounded monthly, to produce a total of $10,000 in 10 years on an initial investment of $6,000.**

Procedure

① [MENU] TVM

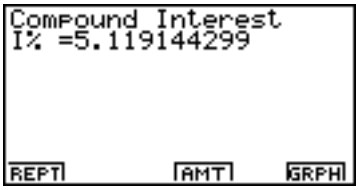
② [F2](CMPD)

③ [CTRL] [F3](SET UP)*1 [F1](Bgn) [ESC]

④ [1] [0] [EXE](Input n = 10)
[▼]
[(–)] [6] [0] [0] [0] [EXE](PV = –6,000)
[0] [EXE](PMT = 0)
[1] [0] [0] [0] [0] [EXE](FV = 10,000)
[1] [EXE]
[1] [2] [EXE](Monthly compounding)

⑤ [F2](I%)

Result Screen



This indicates an interest rate of at least 5.12% is required.

*1On the set up screen, specify "**Begin**" for Payment.

■ Compound interest period

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Example **Calculate the amount of time required to increase an initial investment of $5,000 to a total of $10,000 at an annual rate of 4%, compounded monthly.**

Procedure

① [MENU] TVM

② [F2](CMPD)

③ [CTRL] [F3](SET UP)*1 [F2](End) [ESC]

④ [▼]
[4] [EXE] ($I\%$ = 4)
[(–)] [5] [0] [0] [0] [EXE] (PV = –5,000)
[0] [EXE] (PMT = 0)
[1] [0] [0] [0] [0] [EXE] (FV = 10,000)
[1] [EXE]
[1] [2] [EXE](Monthly compounding)

⑤ [F1](n)

Result Screen

This indicates about 17.35 years (17 years, 5 months) is required.

*1On the set up screen, specify "**End**" for Payment.

■ Installment savings

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Example **Calculate (to two decimal places) the principal plus interest for $250 monthly installments for five years at 6% annual interest, compounded monthly.**
Calculate amounts for when installments are made at the beginning of each month and at the end of each month.

Procedure

① MENU TVM

② F2(CMPD)

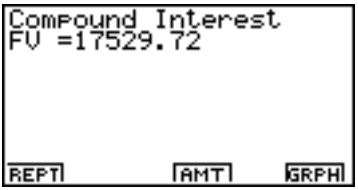
③ CTRL F3(SET UP)*1 F2(End)
▼▼▼▼▼ F1(Fix) 2 EXE ESC

④ 5 × 1 2 EXE(Input $n = 5 \times 12$.)
6 EXE($I\,\% = 6$)
0 EXE($PV = 0$)
(−) 2 5 0 EXE($PMT = -250$)
▼
1 2 EXE(Monthly installments)
(Monthly compounding) *2

⑤ F5(FV)
CTRL F3(SET UP)*3 F1(Bgn) ESC
F5(FV)

Result Screen

Calculation Result (End)



Calculation Result (Bgn)

This indicates that principal plus interest is about $17,443 when payments are made at the end of each month, and about $17,530 when they are made at the beginning of each month.

*1 On the set up screen, specify "**End**" for Payment and "**Fix2**" for Display.

*2 The P/Y value is also automatically input for C/Y, so input of C/Y can be skipped here.

*3 The conditions of a calculation can be changed to perform a new calculation as shown above. The second half of this example stipulates payments made at the beginning of each month, so the setting of the Payment item on the set up screen should be changed to "**Begin**"

■ Installment amount

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Example **Calculate the amount required for each installment to accumulate a total of $10,000 in 5 years at an annual interest rate of 6%, compounded semiannually.**

Procedure

① MENU TVM

② F2(CMPD)

③ CTRL F3(SET UP)*1 F2(End)
▼▼▼▼▼ F2(Norm) ESC

④ 5 × 1 2 EXE(Input $n = 5 \times 12.$)
6 EXE($I\,\% = 6$)
0 EXE($PV = 0$)
▼
1 0 0 0 0 EXE($FV = 10{,}000$)
1 2 EXE(Monthly installments)
2 EXE(Semiannual compounding)

⑤ F4(PMT)

Result Screen

This indicates that a monthly installment of $143.60 is required.

*1On the set up screen, specify "**End**" for Payment and "**Norm1**" for Display.

■ Number of installments

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Example **Calculate the number of monthly $84 installments required to accumulate a total of $6,000 at an annual interest rate of 6%, compounded annually.**

Procedure

① MENU TVM

② F2(CMPD)

③ CTRL F3(SET UP)*1 F2(End) ESC

④ ▼
6 EXE(I % = 6)
0 EXE(PV = 0)
(−) 8 4 EXE(PMT = –84)
6 0 0 0 EXE(FV = 6,000)
1 2 EXE(Monthly installments)
1 EXE(Annual compounding)

⑤ F1(n)

Result Screen

This indicates 62 payments are required.

*1On the set up screen, specify "**End**" for Payment.

■ Principal plus interest with initial deposit

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Example **Calculate the principal plus interest after one year for an installment savings account with an interest rate of 4.5%, compounded monthly, opened with an initial deposit of $1,000, with $500 installments added each month.**

Procedure

① MENU TVM

② F2(CMPD)

③ CTRL F3(SET UP)*1 F2(End) ESC

④ 1 × 1 2 EXE(Input $n = 1 \times 12.$)
4 • 5 EXE($I\% = 4.5$)
(–) 1 0 0 0 EXE($PV = -1{,}000$)
(–) 5 0 0 EXE($PMT = -500$)
▼
1 2 EXE(Monthly installments)
(Monthly compounding)*2

⑤ F5(FV)

Result Screen

This indicates a principal plus interest amount of around $7,171.25.

*1On the set up screen, specify "**End**" for Payment.

*2The P/Y value is also automatically input for C/Y, so input of C/Y can be skipped here.

■ Borrowing power

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Example **Calculate how much can be borrowed on a 15-year loan at a 7.5% annual interest rate, compounded monthly, if a payment of $450 per month can be made.**

Procedure

① MENU TVM

② F2(CMPD)

③ CTRL F3(SET UP)*1 F2(End) ESC

④ 1 5 × 1 2 EXE(Input $n = 15 \times 12$.)
7 • 5 EXE($I\% = 7.5$)
▼
(–) 4 5 0 EXE($PMT = -450$)
0 EXE($FV = 0$)
1 2 EXE(Monthly installments)
(Monthly compounding)*2

⑤ F3(PV)

Result Screen

This indicates around $48,543 can be borrowed.

*1 On the set up screen, specify "**End**" for Payment.

*2 The P/Y value is also automatically input for C/Y, so input of C/Y can be skipped here.

■ Loan installments

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Example **Calculate the size of the monthly installment for a 25-year $300,000 home loan made at 6.2%, compounded semiannually.**

Procedure

① [MENU] TVM

② [F2](CMPD)

③ [CTRL] [F3](SET UP)*1 [F2](End) [ESC]

④ [2] [5] [×] [1] [2] [EXE](Input $n = 25 \times 12$.)
[6] [•] [2] [EXE]($I\% = 6.2$)
[3] [0] [0] [0] [0] [0] [EXE]($PV = 300{,}000$)
[▼]
[0] [EXE]($FV = 0$)
[1] [2] [EXE](Monthly installments)
[2] [EXE](Semiannual compounding)

⑤ [F4](PMT)

Result Screen

This indicates a monthly installment of around $1,955.23

*1On the set up screen, specify "**End**" for Payment.

■ Number of installments

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Example **Calculate the number of installments it will take to repay a $60,000 loan borrowed at 5.5%, compounded monthly, with monthly installments of $840.**

Procedure

① MENU TVM

② F2(CMPD)

③ CTRL F3(SET UP)*1 F2(End) ESC

④ ▼
5 • 5 EXE(I% = 5.5)
6 0 0 0 0 EXE(PV = 60,000)
(–) 8 4 0 EXE(PMT = –840)
0 EXE(FV = 0)
1 2 EXE(Monthly installments)
(Monthly compounding)*2

⑤ F1(n)

Result Screen

This indicates that 87 installments are required.

*1 On the set up screen, specify "**End**" for Payment.

*2 The P/Y value is also automatically input for C/Y, so input of C/Y can be skipped here.

■ Effective interest rate

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Example **Calculate (to two decimal places) the effective interest rate compounded monthly, on a 25-year $65,000 loan repaid with $460 monthly installments.**

Procedure

① [MENU] TVM

② [F2](CMPD)

③ [CTRL] [F3](SET UP)*1 [▼] [▼] [▼] [▼] [▼] [F1](Fix) [2] [EXE] [ESC]

④ [2] [5] [×] [1] [2] [EXE](Input $n = 25 \times 12$.)
[▼]
[6] [5] [0] [0] [0] [EXE](PV = 65,000)
[(–)] [4] [6] [0] [EXE](PMT = –460)
[0] [EXE](FV = 0)
[1] [2] [EXE](Monthly installments)
(Monthly compounding)*2

⑤ [F2](I%)

Result Screen

This indicates an effective interest rate of around 7.01%.

*1 On the set up screen, specify "**Fix2**" for Display.

*2 The P/Y value is also automatically input for C/Y, so input of C/Y can be skipped here.

3. Cash Flow (Investment Appraisal)

Set Up

1. On the Main Menu, select the **STAT** icon to enter the LIST Mode and input data into a list.
2. On the Main Menu, select the **TVM** icon.

Execution

3. F3(CASH) ..... cash flow calculation
4. Set up the calculator for the example.
5. Specify the parameters required for the calculation.
   F6(LIST) ..... specifies a list for cash flow
6. F1(NPV) ..... net present value
   F2(IRR) ..... internal rate of return
   F3(PBP) ..... pay back period
   F4(NFV) ..... net future value
7. F6(GRPH) ..... draws graph
   F1(REPT) ..... parameter input screen
   You can perform the following operations after drawing a graph.
   F1(TRACE) ..... trace on

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Example **An investment of $86,000 in machinery projects the annual revenues shown in the table below (all revenues realized at the end of the fiscal year). What is the net present value of this investment if the useful service life of the machine is six years, the resale value after six years is $14,000, and the capital cost is 11%?**

Year	Revenues
1	–5,000
2	42,000
3	31,000
4	24,000
5	23,000
6	12,000 + 14,000

Procedure

① MENU STAT
(List 1)
(−) 8 6 0 0 0 EXE
(−) 5 0 0 0 EXE
4 2 0 0 0 EXE
3 1 0 0 0 EXE
2 4 0 0 0 EXE
2 3 0 0 0 EXE
1 2 0 0 0 + 1 4 0 0 0 EXE

② MENU TVM

③ F3 (CASH)

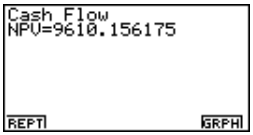
④ CTRL F3 (SET UP)*1 ▼ ▼ ▼ ▼ ▼ F2 (Norm) ESC

⑤ 1 1 EXE (*I*% = 11)
F6 (LIST) 1 EXE (List 1)

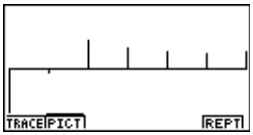
⑥ F1 (NPV)

⑦ F6 (GRPH)
F1 (TRACE)

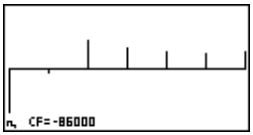
Result Screen



Calculation Result



Graph Screen



Trace Screen

This indicates the NPV (net present value) is approximately $9,610.2.

*1 On the set up screen, specify "**Norm1**" for Display .

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Example **An investment of $10,000 in machinery projects the annual revenues shown in the table below (all revenues realized at the end of the fiscal year). What is the internal rate of return of this investment if the useful service life of the machinery is five years and the resale value after five years is $7,000?**

Year	Revenues
1	2,000
2	2,400
3	2,200
4	2,000
5	1,800 + 3,000

Procedure

① MENU STAT
▶(List 2)
(↔) 1 0 0 0 0 EXE
2 0 0 0 EXE
2 4 0 0 EXE
2 2 0 0 EXE
2 0 0 0 EXE
1 8 0 0 + 3 0 0 0 EXE

② MENU TVM

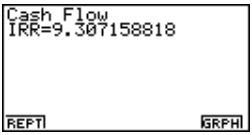
③ F3(CASH)

⑤ ▼
F6(LIST) 2 EXE(List 2)

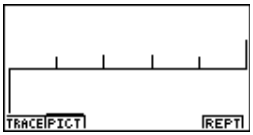
⑥ F2(IRR)

⑦ F6(GRPH)
F1(TRACE)

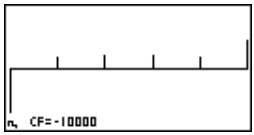
Result Screen



Calculation Result



Graph Screen



Trace Screen

This indicates an internal rate of return of 9.3%.

4. Amortization

Set Up

1. On the Main Menu, select the **TVM** icon.

Execution

2. F4(AMT) ..... amortization calculation
   F2(CMPD) ..... compound interest calculation

   Performing a compound interest calculation first helps to obtain the parameters required for the amortization calculation.
3. Set up the calculator for the example.
4. If you are performing a compound interest calculation first, perform the calculation and then press F4(AMT) to advance to amortization calculation.
5. Specify the parameters required for the calculation.
6. F1(BAL) ..... balance of principal after installment PM2
   F2(INT) ..... interest portion of installment PM1
   F3(PRN) ..... principal portion of installment PM1
   F4(ΣINT) ..... total interest from installment PM1 to payment of installment PM2
   F5(ΣPRN) ..... total principal from installment PM1 to payment of installment PM2
   F6(CMPD) ..... compound interest
7. F6(GRPH) ..... draws graph
   F1(REPT) ..... parameter input screen
   You can perform the following operations after drawing a graph.
   F1(TRACE) ..... trace on

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Example **Calculate the monthly installment due on a $140,000 15-year home mortgage at an annual rate of 6.5%, compounded semiannually. Also calculate *PRN* and *INT* for the second year (24th installment), *BAL* for installment 49, and Σ*INT*, Σ*PRN* for installments 24 through 49.**

Procedure

① MENU TVM ② F2(CMPD) ③ CTRL F3(SET UP)*1 F2(End) ESC

④ 1 5 × 1 2 EXE(Input $n = 15 \times 12$.) 6 • 5 EXE($I\% = 6.5$)
1 4 0 0 0 0 EXE($PV = 140{,}000$) ▼ 0 EXE($FV = 0$)
1 2 EXE(Monthly installments) 2 EXE(Semiannual compounding)

Result Screen

F4(PMT)

This indicates the monthly installment due is approximately $1213.

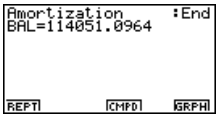
F4(AMT)
⑤ 2 4 EXE(PM1=24)
4 9 EXE(PM2=49)
⑥ F3(PRN)

Calculation Result (*PRN*)

F1(REPT)
F2(INT)

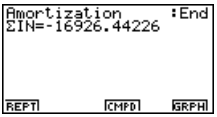
Calculation Result (*INT*)

F1(REPT)
F1(BAL)



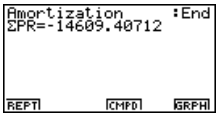
Calculation Result (*BAL*)

F1(REPT)
F4(ΣINT)



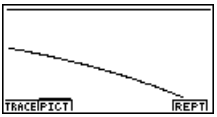
Calculation Result (Σ*INT*)

F1(REPT)
F5(ΣPRN)

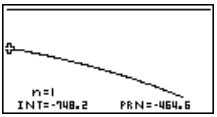


Calculation Result (Σ*PRN*)

⑦ F6(GRPH)
F1(TRACE)*2



Graph Screen



Trace Screen

*1 On the set up screen, specify "**End**" for Payment.

*2 Trace can be activated following the calculation. Pressing ▶ displays *INT* and *PRN* when $n = 1$. Each subsequent press of ▶ displays *INT* and *PRN* for $n = 2$, $n = 3$, and so on.

5. Interest Rate Conversion

Set Up

1. On the Main Menu, select the **TVM** icon.

Execution

2. F5(CNVT) ... conversion calculation
3. Set up the calculator for the example.
4. Specify the parameters required for the calculation.
5. F1(▶EFF) ... annual percentage rate to effective interest rate conversion
   F2(▶APR) ... effective interest rate to annual percentage rate conversion

■ Converting the Annual Percentage Rate (*APR*) to the Effective Interest Rate (*EFF*)

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Example **Calculate (to two decimal places) the effective interest rate for an account paying an interest rate of 12%, compounded quarterly.**

Procedure

① MENU TVM

② F5 (CNVT)

③ CTRL F3 (SET UP)*1
▼ ▼ ▼ ▼ ▼ F1 (Fix) 2 EXE ESC

④ 4 EXE (*n* = 4)
1 2 EXE (*I*% = 12)

⑤ F1 (▶EFF)

Result Screen

This indicates an effective interest rate of 12.55%.

*1 On the set up screen, specify "**Fix2**" for Display.

■ Converting the Effective Interest Rate (*EFF*) to the Annual Percentage Rate (*APR*)

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Example **Calculate the annual percentage rate for an account paying an effective interest rate of 12.55%, compounded quarterly.**

Procedure

① MENU TVM

② F5 (CNVT)

③ CTRL F3 (SET UP)*1
▼ ▼ ▼ ▼ ▼ F2 (Norm) ESC

④ 4 EXE (*n* = 4)
1 2 • 5 5 EXE (*I*% = 12.55)

⑤ F2 (▶APR)

Result Screen

This indicates an annual percentage rate of 12.00%.

*1 On the set up screen, specify "**Norm1**" for Display.

6. Cost, Selling Price, Margin

Set Up

1. On the Main Menu, select the **TVM** icon.

Execution

2. F6(▷)F1(COST).... cost, selling price, margin calculation
3. Specify the parameters required for the calculation.
4. F1(COST)..... cost
   F2(SEL) ..... selling price
   F3(MRG) ..... margin

■ Cost

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Example **Calculate the cost for a selling price of $2,000 and a margin of 15%.**

Procedure

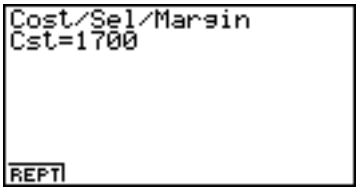
① MENU TVM

② F6(▷)F1(COST)

③ ⊙
2 0 0 0 EXE(Sel = 2,000)
1 5 EXE(Mrg = 15)

④ F1(COST)

Result Screen



This indicates a cost of $1,700.

■ Selling Price

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Example **Calculate the selling price for a cost of $1,200 and a margin of 45%.**

Procedure

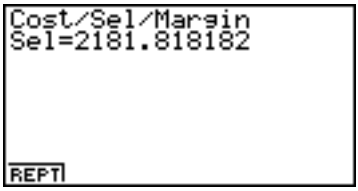
① [MENU] TVM

② [F6](▷)[F1](COST)

③ [1][2][0][0][EXE](Cst = 1,200)
[▼]
[4][5][EXE](Mrg = 45)

④ [F2](SEL)

Result Screen



This indicates a selling price of $2,181.82.

■ Margin

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Example **Calculate the margin for a selling price of $2,500 and a cost of $1,250.**

Procedure

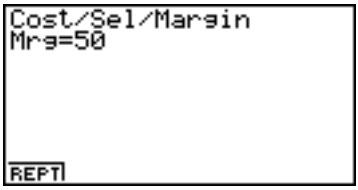
① [MENU] TVM

② [F6](▷)[F1](COST)

③ [1][2][5][0][EXE](Cst = 1,250)
[2][5][0][0][EXE](Sel = 2,500)

④ [F3](MRG)

Result Screen



This indicates a margin of 50%.

7. Day/Date Calculations

Set Up

1. On the Main Menu, select the **TVM** icon.

Execution

2. F6 (▷) F2 (DAYS) .... day/date calculation
3. Set up the calculator for the example.
4. Specify the date and the number of days.
5. F1 (PRD) ..... number of dates between two dates (d2 – d1)
   F2 (d1+D) ..... future date
   F3 (d1–D) ..... previous date

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Example **Calculate the number of days from January 1, 1997 to May 20, 2001, using a 365-day year.**

Procedure

① MENU TVM

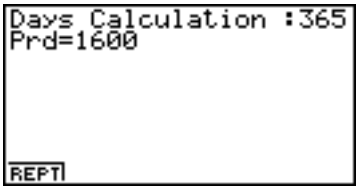
② F6 (▷) F2 (DAYS)

③ CTRL F3 (SET UP)*1 ▼ F1 (365) ESC

④ 1 EXE 1 EXE 1 9 9 7 EXE (d1 = 1/1/1997)
5 EXE 2 0 EXE 2 0 0 1 EXE (d2 = 5/20/2001)

⑤ F1 (PRD)

Result Screen



This indicates that there are 1,600 days from January 1, 1997 to May 20, 2001.

*1 On the set up screen, specify "**365**" for Date Mode.

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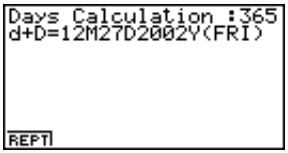
Example **Determine the date that is 1,000 days after April 1, 2000, using a 365-day year.**

Procedure

① [MENU] TVM
② [F6](▷)[F2](DAYS)
③ [CTRL][F3](SET UP)*1(▼)[F1](365)[ESC]
④ [4][EXE][1][EXE][2][0][0][0][EXE](d1 = 4/1/2000)
(▼)
[1][0][0][0][EXE](D = 1,000)
⑤ [F2](d1+D)

Result Screen



This indicates that the date falling 1,000 days after April 1, 2000 is December 27, 2002.

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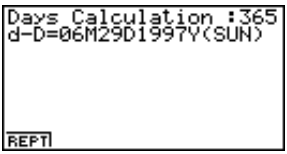
Example **To determine the date that is 1,000 days before March 25, 2000, using a 365-day year.**

Procedure

① [MENU] TVM
② [F6](▷)[F2](DAYS)
③ [CTRL][F3](SET UP)*1(▼)[F1](365)[ESC]
④ [3][EXE][2][5][EXE][2][0][0][0][EXE](d1 = 3/25/2000)
(▼)
[1][0][0][0][EXE](D = 1,000)
⑤ [F3](d1–D)

Result Screen



This indicates that the date falling 1,000 days before March 25, 2000 is June 29, 1997.

*1On the set up screen, specify "**365**" for Date Mode.

8. Depreciation

Set Up

1. On the Main Menu, select the **TVM** icon.

Execution

2. F6(▷)F3(DEPR).... depreciation
3. Specify the parameters required for the calculation.
4. F1(SL) ..... straight line method
   F2(FP) ..... fixed percentage method
   F3(SYD) ..... sum-of-year's digits method
   F4(DB) ..... declining balance method
5. F6(TABL) ..... results in table format
   F1(REPT) ..... parameter input screen
6. F6(GRPH) ..... draws graph
   F1(REPT) ..... parameter input screen

You can perform the following operations after drawing a graph.
F1(TRACE) ..... trace on

■ Straight Line Method

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Example **Using the straight-line method, what would be depreciation for the first year on a new vehicle with an estimated useful life of five years, which is purchased three months before the end of the year for $32,500?**

Procedure

① [MENU] TVM

② [F6](▷)[F3](DEPR)

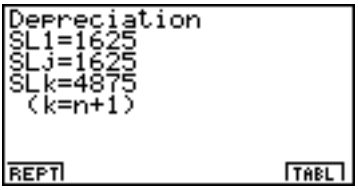
③ [5][EXE](n = 5)
[▼]
[3][2][5][0][0][EXE](PV = 32,500)
[0][EXE](FV = 0)
[1][EXE](j = 1)
[3][EXE](Y–1 = 3)

④ [F1](SL)

⑤ [F6](TABL)

⑥ [F6](GRPH)
[F1](TRACE)

Result Screen



Calculation Result

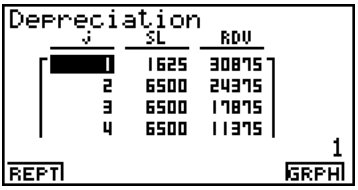
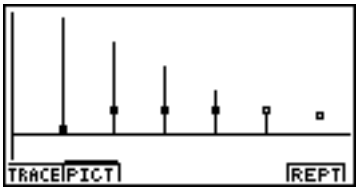
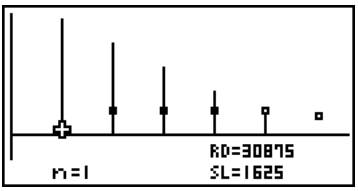


Table Screen



Graph Screen



Trace Screen

This indicates depreciation for the first year is $1,625.

■ Fixed Percentage Method

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Example **Using the fixed percentage method, what would be depreciation for the second year on a new machine with an estimated useful life of eight years and salvage value of $4,000, which is purchased for $40,000? The fixed percentage rate is 25%.**

Procedure

① MENU TVM

② F6(▷)F3(DEPR)

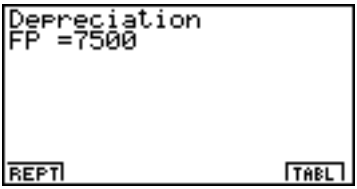
③ 8 EXE(n = 8)
2 5 EXE(I% = 25)
4 0 0 0 0 EXE(PV = 40,000)
4 0 0 0 EXE(FV = 4,000)
2 EXE(j = 2)
1 2 EXE(Y–1 = 12)*1

④ F2(FP)1(FP)

⑤ F6(TABL)

⑥ F6(GRPH)
F1(TRACE)►

Result Screen



Calculation Result

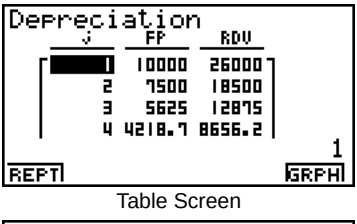
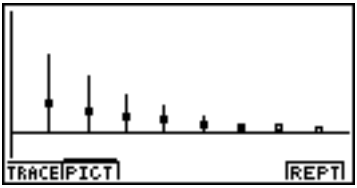
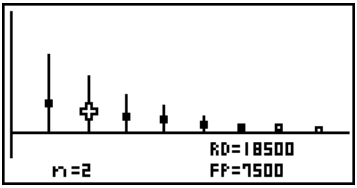


Table Screen



Graph Screen



Trace Screen

This indicates depreciation for the second year is $7,500.

*1 12 is the default value, so its input can be skipped here.

■ Sum-of-Year's Digits Method

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Example **Using the sum-of-year's digits method, what would be depreciation and remaining depreciation value for the seventh year on a television camera with an estimated useful life of 25 years and salvage value of $1,000, which is purchased eight months before the end of the year for $75,000?**

Procedure

① [MENU] TVM

② [F6](▷)[F3](DEPR)

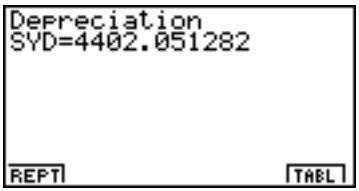
③ [2][5][EXE](n = 25)
(▼)
[7][5][0][0][0][EXE](PV = 75,000)
[1][0][0][0][EXE](FV = 1,000)
[7][EXE](j = 7)
[8][EXE](Y–1 = 8)

④ [F3](SYD)

⑤ [F6](TABL)(▼)(▼)(▼)(▼)(▼)(▼)(▶)(▶)

⑥ [F6](GRPH)
[F1](TRACE)(▶)(▶)(▶)(▶)(▶)(▶)

Result Screen



Calculation Result

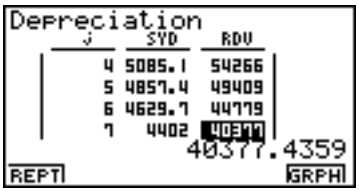
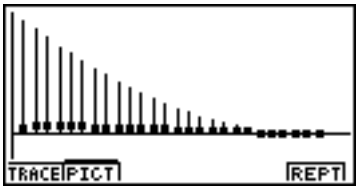
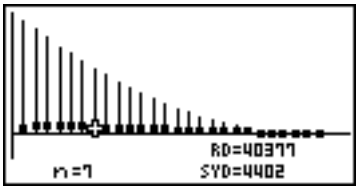


Table Screen



Graph Screen



Trace Screen

This indicates depreciation for the seventh year is approximately $4,402.05 and remaining depreciation value is approximately $40,377.44.

■ Declining Balance Method

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Example **Using the double declining balance method, what would be depreciation for the third year on a machine with a salvage value of $12,500, which is purchased for $125,000 and depreciated over 5 years?**

Procedure

① MENU TVM

② F6(▷)F3(DEPR)

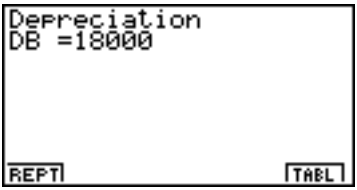
③ 5 EXE(n = 5)
2 0 0 EXE(I% = 200 : 200% declining balance method)
1 2 5 0 0 0 EXE(PV = 125,000)
1 2 5 0 0 EXE(FV = 12,500)
3 EXE(j = 3)
1 2 EXE(Y–1 = 12)*1

④ F4(DB)

⑤ F6(TABL)

⑥ F6(GRPH)
F1(TRACE)▶▶

Result Screen



Calculation Result

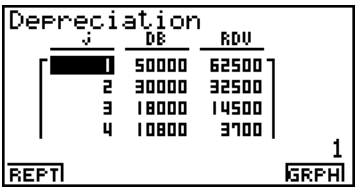
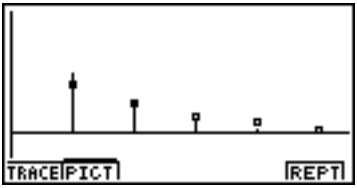
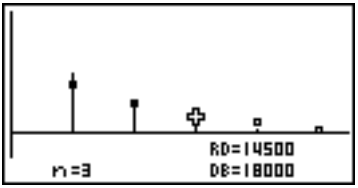


Table Screen



Graph Screen



Trace Screen

This indicates depreciation for the third year is $18,000.

*1 12 is the default value, so its input can be skipped here.

9. Bonds

Set Up

1. On the Main Menu, select the **TVM** icon.

Execution

2. F6(▷)F4(BOND) ... bond calculation
3. Set up the calculator for the example.
4. Specify the parameters required for the calculation.
5. F1(PRC) ..... price per $100 of face value
   F2(YLD) ..... yield to maturity
6. F5(MEMO) ..... screen of various bond calculation values
   F6(GRPH) ..... draws graph
   F1(REPT) ..... parameter input screen
   You can perform the following operations after drawing a graph.
   F1(TRACE) ..... trace on

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Example **What price should you pay on May 20, 1992 for a 6.75% 30/360 bond with semiannual coupon payments that matures on June 1, 2000, if you want a yield of 7.5%?**

Procedure

① MENU TVM

② F6(▷) F4(BOND)

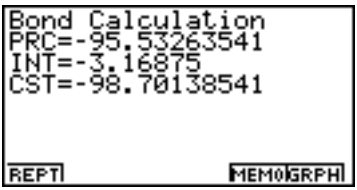
③ CTRL F3(SET UP)*1 ▼ F2(360) ▼ F2(Semi) ESC

④ 5 EXE 2 0 EXE 1 9 9 2 EXE(d1 = 5/20/1992)
6 EXE 1 EXE 2 0 0 0 EXE(d2 = 6/1/2000)
1 0 0 EXE(*RDV* = 100)
6 • 7 5 EXE(*CPN* = 6.75)
▼
7 • 5 EXE(*YLD* = 7.5)

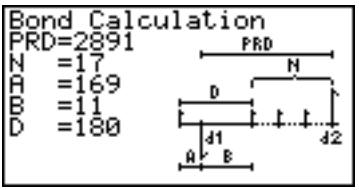
⑤ F1(PRC)

⑥ F5(MEMO)
ESC F1(PRC)
F6(GRPH)
F1(TRACE)

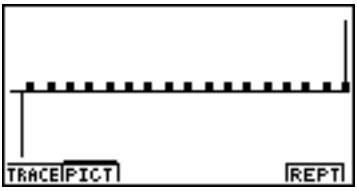
Result Screen



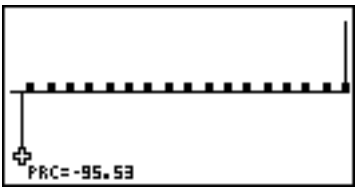
Calculation Result



Memo Screen



Graph Screen



Trace Screen

This indicates a purchase price of approximately $95.53.

*1On the set up screen, specify "**360**" for Date Mode and "**Semi**" for Periods/YR.