

TI-80

Simple Interest Program

This program can be used to find the amount of simple interest earned on a given principal at a given annual interest rate for a certain amount of time.

```
PROGRAM:SIMPINT
:FIX 2
:DISP "PRINCIPAL"
:INPUT P
:DISP "INTEREST RATE"
:DISP "IN DECIMAL FORM"
:INPUT R
:DISP "NUMBER OF YEARS"
:INPUT T
:PRT →I
:DISP "THE INTEREST IS"
:DISP I
:FLOAT
```

Quadratic Formula Program

This program will display the solutions to quadratic equations or the words "No Real Solution." To use the program, write the quadratic equation in standard form and enter the values of a , b , and c .

```
PROGRAM:QUADRAT
:Disp "AX^2+BX+C=0"
:Input "ENTER A", A
:Input "ENTER B", B
:Input "ENTER C," C
:B^2-4AC →D
:If D≥0
:Then
:(-B+√D)/(2A) →M
:Disp M
:(-B-√D)/(2A) →N
:Disp N
:Else
:Disp "NO REAL SOLUTION"
:End
```

Two-Point Form of a Line

This program will display the slope and y -intercept of the line that passes through two points, (x_1, y_1) and (x_2, y_2) , entered by the user.

```
PROGRAM:TWOPTFM
:DISP "ENTER X1, Y1"
:INPUT X
:INPUT Y
:DISP "ENTER X2, Y2"
:INPUT C
:INPUT D
:(D-Y)/(C-X) →M
:M×(-X)+Y →B
:DISP "SLOPE ="
:DISP M
:DISP "Y-INT ="
:DISP B
```

Reflections and Shifts Program

This program will sketch a graph of the function $y = R(x + H)^2 + V$, where $R = \pm 1$, H is an integer between -6 and 6 , and V is an integer between -3 and 3 . This program gives you practice working with reflections, horizontal shifts, and vertical shifts. Press after viewing the graph to display the values of the integers.

```
PROGRAM:PARABOL
:-6+INT (12RAND) →H
:-3+INT (6RAND) →V
:RAND →R
:IF R <.5
:THEN
:-1 →R
:ELSE
:1 →R
:END
:"R(X+H)^2+V" →Y1
:-9 →XMIN
:9 →XMAX
:1 →XSCL
:-6 →YMIN
:6 →YMAX
:1 →YSCL
:DISPGRAPH
:PAUSE
:DISP "Y=R(X+H)^2+V^2"
:DISP "R=",R
:DISP "H=",H
:DISP "V=",V
:PAUSE
```

Graph Reflection Program

This program will graph a function f and its reflection in the line $y = x$. To use this program, enter the function in Y1 and set a viewing rectangle.

```
PROGRAM:REFLECT
:47XMIN/63 → YMIN
:47XMAX/63 → YMAX
:XSCL → YSCL
:“X” → Y2
:DISPGRAPH
:(XMAX-XMIN)/62 → I
:XMIN → X
:LBL A
:PT-ON(Y1,X)
:X+I → X
:If X>XMAX
:STOP
:GOTO A
```

Systems of Linear Equations Program

This program will display the solution of a system of two linear equations in two variables of the form

$$ax + by = c$$

$$dx + ey = f$$

if a unique solution exists.

```
PROGRAM:SOLVE
:DISP “AX+BY=C”
:INPUT “ENTER A”,A
:INPUT “ENTER B”,B
:INPUT “ENTER C”,C
:DISP “DX+EY=F”
:INPUT “ENTER D”,D
:INPUT “ENTER E”,E
:INPUT “ENTER F”,F
:IF AE-DB=0
:THEN
:DISP “NO UNIQUE”
:DISP “SOLUTION”
:ELSE
:(CE-BF)/(AE-DB) → X
:(AF-CD)/(AE-DB) → Y
:DISP X
:DISP Y
:END
```

Sum Program

To use this program, first store the n th term of the sequence in Y1 (in terms of X).

```
PROGRAM:SUM
:INPUT “LOWER LIMIT”, M
:INPUT “UPPER LIMIT”, N
:sum seq(Y1,X,M,N,1) → S
:DISP “sum =”,S
:END
```

TI-81

Simple Interest Program

This program can be used to find the amount of simple interest earned on a given principal at a given annual interest rate for a certain amount of time.

```
PROGRAM:SIMPINT
:Fix 2
:Disp "PRINCIPAL"
:Input P
:Disp "INTEREST RATE"
:Disp "IN DECIMAL FORM"
:Input R
:Disp "NUMBER OF YEARS"
:Input T
:PRT →I
:Disp "THE INTEREST IS"
:Disp I
:Float
```

Quadratic Formula Program

This program will display the solutions to quadratic equations or the words "No Real Solution." To use the program, write the quadratic equation in standard form and enter the values of a , b , and c .

```
Prgm4: QUADRAT
:Disp "ENTER A"
:Input A
:Disp "ENTER B"
:Input B
:Disp "ENTER C"
:Input C
:B2-4AC →D
:If D<0
:Goto 1
:((-B+√D)/(2A))→M
:Disp M
:((-B-√D)/(2A))→N
:Disp N
:End
:Lbl 1
:Disp "NO REAL"
:Disp "SOLUTION"
:End
```

Two-Point Form of a Line Program

This program will display the slope and y-intercept of the line that passes through two points, (x_1, y_1) and (x_2, y_2) , entered by the user.

```
PROGRAM:TWOPTFM
:Disp "ENTER X1, Y1"
:Input X
:Input Y
:Disp "ENTER X2, Y2"
:Input C
:Input D
:(D-Y)/(C-X)→M
:M*(-X)+Y→B
:Disp "SLOPE ="
:Disp M
:Disp "Y-INT ="
:Disp B
```

Reflections and Shifts Program

This program will sketch a graph of the function $y = R(x + H)^2 + V$, where $R = \pm 1$, H is an integer between -6 and 6 , and V is an integer between -3 and 3 . This program gives you practice working with reflections, horizontal shifts, and vertical shifts. Press ENTER after viewing the graph to display the values of the integers.

```
Prgm2:PARABOLA
:Rand → H
:-6+Int (12H) → H
:Rand → V
:-3+Int (6V) → V
:Rand → R
:If R <.5
:-1 → R
:If R >.49
:1 → R
:“R(X+H)2+V” → Y1
:-9 → Xmin
:9 → Xmax
:1 → Xscl
:-6 → Ymin
:6 → Ymax
:1 → Yscl
:DispGraph
:Pause
:Disp “Y=R(X+H)2+V”
:Disp “R=”
:Disp R
:Disp “H=”
:Disp H
:Disp “V=”
:Disp V
:End
```

Graph Reflection Program

This program will graph a function f and its reflection in the line $y = x$. To use this program, enter the function in Y_1 and set a viewing rectangle.

```
Prgm3:REFLECT
:2Xmin/3 → Ymin
:2Xmax/3 → Ymax
:Xscl → Yscl
:“X” → Y2
:DispGraph
:(Xmax-Xmin)/95 → I
:Xmin → X
:Lbl 1
:Pt-On(Y1,X)
:X+I → X
:If X>Xmax
:End
:Goto 1
```

Systems of Linear Equations Program

This program will display the solution of a system of two linear equations in two variables of the form

$$ax + by = c$$

$$dx + ey = f$$

if a unique solution exists.

```
Prgm4:SOLVE
:Disp “AX+BY=C”
:Input A
:Input B
:Input C
:Disp “DX+EY=F”
:Input D
:Input E
:Input F
:If AE-DB=0
:Goto 1
:(CE-BF)/(AE-DB) → X
:(AF-CD)/(AE-DB) → Y
:Disp X
:Disp Y
:End
:Lbl 1
:Disp “NO UNIQUE SOLUTION”
:End
```

Sum Program

To use this program, first store the n th term of the sequence in $Y1$ (in terms of X).

```
Prgm5:SUM
:Disp "ENTER M"
:Input M
:Disp "ENTER N"
:Input N
:0 → S
:Lbl 1
:M → X
:S+Y1 → S
:Disp S
:IS>(M,N)
:Goto 1
:End
```

TI-82 TI-83

Simple Interest Program

This program can be used to find the amount of simple interest earned on a given principal at a given annual interest rate for a certain amount of time.

```
PROGRAM:SIMPINT
:Fix 2
:Disp "PRINCIPAL"
:Input P
:Disp "INTEREST RATE"
:Disp "IN DECIMAL FORM"
:Input R
:Disp "NUMBER OF YEARS"
:Input T
:PRT → I
:Disp "THE INTEREST IS"
:Disp I
:Float
```

Quadratic Formula Program

This program will display the solutions to quadratic equations or the words "No Real Solution." To use the program, write the quadratic equation in standard form and enter the values of a , b , and c .

```
PROGRAM:QUADRAT
:Disp "AX^2+BX+C=0"
:Prompt A
:Prompt B
:Prompt C
:B^2-4AC → D
:If D ≥ 0
:Then
:(-B + √ D)/(2A) → M
:Disp M
:(-B - √ D)/(2A) → N
:Disp N
:Else
:Disp "NO REAL SOLUTION"
:End
```

Two-Point Form of a Line Program

This program will display the slope and y -intercept of the line that passes through two points, (x_1, y_1) and (x_2, y_2) , entered by the user.

```
PROGRAM:TWOPTFM
:Disp "ENTER X1, Y1"
:Input X
:Input Y
:Disp "ENTER X2, Y2"
:Input C
:Input D
:(D - Y)/(C - X) → M
:M*(-X) + Y → B
:Disp "SLOPE ="
:Disp M
:Disp "Y-INT ="
:Disp B
```

Reflections and Shifts Program

This program will sketch a graph of the function $y = R(x + H)^2 + V$, where $R = \pm 1$, H is an integer between -6 and 6 , and V is an integer between -3 and 3 . This program gives you practice working with reflections, horizontal shifts, and vertical shifts. Press after viewing the graph to display the values of the integers.

```
PROGRAM:PARABOLA
:-6+int(12rand) → H
:-3+int(6rand) → V
:rand → R
:If R < .5
:Then
:-1 → R
:Else
:1 → R
:End
:"R(X+H)^2+V" → Y1
:-9 → Xmin
:9 → Xmax
:1 → Xscl
:-6 → Ymin
:6 → Ymax
:1 → Yscl
:DispGraph
:Pause
:Disp "Y=R(X+H)^2+V"
:Disp "R=",R
:Disp "H=",H
:Disp "V=",V
:Pause
```

Graph Reflection Program

This program will graph a function f and its reflection in the line $y = x$. To use this program, enter the function in Y_1 and set a viewing rectangle.

```
PROGRAM:REFLECT
:63Xmin/95 → Ymin
:63Xmax/95 → Ymax
:Xscl → Yscl
:“X” → Y2
:DispGraph
:(Xmax-Xmin)/94 → I
:Xmin → X
:While X≤Xmax
:Pt-On(Y1,X)
:X+I → X
:End
```

Systems of Linear Equations Program

This program will display the solution of a system of two linear equations in two variables of the form

$$ax + by = c$$

$$dx + ey = f$$

if a unique solution exists.

```
PROGRAM:SOLVE
:Disp “AX+BY=C”
:Prompt A
:Prompt B
:Prompt C
:Disp “DX+EY=F”
:Prompt D
:Prompt E
:Prompt F
:If AE-DB=0
:Then
:Disp “NO UNIQUE”
:Disp “SOLUTION”
:Else
:(CE-BF)/(AE-DB) → X
:(AF-CD)/(AE-DB) → Y
:Disp X
:Disp Y
:End
```

Sum Program

To use this program, first store the n th term of the sequence in Y_1 (in terms of X).

```
PROGRAM:SUM
:INPUT “LOWER LIMIT”, M
:INPUT “UPPER LIMIT”, N
:sum seq(Y1,X,M,N,1) → S
:DISP “sum =”,S
:END
```

TI-85 TI-86

Simple Interest Program

This program can be used to find the amount of simple interest earned on a given principal at a given annual interest rate for a certain amount of time.

```
PROGRAM:SIMPINT
:Fix 2
:Disp "Principal"
:Input P
:Disp "Interest rate"
:Disp "in decimal form"
:Input R
:Disp "Number of years"
:Input T
:P*R*T → I
:Disp "The interest is"
:Disp I
:Float
```

Quadratic Formula Program

This program will display the solutions to quadratic equations or the words "No Real Solution." To use the program, write the quadratic equation in standard form and enter the values of a , b , and c . This program gives both real and complex answers. Solutions to quadratic equations are also available directly by using the POLY function.

```
PROGRAM:QUADRAT
:Disp "AX2+BX+C=0"
:Input "ENTER A", A
:Input "ENTER B", B
:Input "ENTER C", C
:B2-4*A*C → D
:(-B+√D)/(2A) → M
:Disp M
:(-B-√D)/(2A) → N
:Disp N
```

Two-Point Form of a Line Program

This program will display the slope and y -intercept of the line that passes through two points, (x_1, y_1) and (x_2, y_2) , entered by the user.

```
PROGRAM:TWOPTFM
:Disp "ENTER X1, Y1"
:Input X
:Input Y
:Disp "Enter X2, Y2"
:Input C
:Input D
:(D-Y)/(C-X) → M
:M*(-X)+Y → B
:Disp "Slope ="
:Disp M
:Disp "Y-int ="
:Disp B
```

Reflections and Shifts Program

This program will sketch a graph of the function $y = R(x + H)^2 + V$, where $R = \pm 1$, H is an integer between -6 and 6 , and V is an integer between -3 and 3 . This program gives you practice working with reflections, horizontal shifts, and vertical shifts. Press after viewing the graph to display the values of the integers.

```
PROGRAM:PARABOLA
:rand → H
:-6+int(12H) → H
:rand → V
:-3+int(6V) → V
:rand → R
:If R < .5
:-1 → R
:If R > .49
:1 → R
:y1=R(x+H)2+V
:-9 → xMin
:9 → xMax
:1 → xScl
:-6 → yMin
:6 → yMax
:1 → yScl
:DispG
:Pause
:Disp "Y=R(X+H)2+V"
:Disp "R=",R
:Disp "H=",H
:Disp "V=",V
:Pause
```

Graph Reflection Program

This program will graph a function f and its reflection in the line $y = x$. To use this program, enter the function in $y1$ and set a viewing rectangle.

```
PROGRAM:REFLECT
:63*xMin/127 → yMin
:63*xMax/127 → yMax
:xScl → yScl
:y2=x
:DispG
:(xMax-xMin)/126 → I
:xMin → x
:Lbl A
:PtOn(y1,x)
:x+I → x
:If x>xMax
:Stop
:Goto A
```

Systems of Linear Equations Program

This program will display the solution of a system of two linear equations in two variables of the form

$$ax + by = c$$

$$dx + ey = f$$

if a unique solution exists.

```
PROGRAM:SOLVE
:Disp "AX+BY=C"
:Input "ENTER A",A
:Input "ENTER B",B
:Input "ENTER C",C
:Disp "DX+EY=F"
:Input "ENTER D",D
:Input "ENTER E",E
:Input "ENTER F",F
:If A*E-D*B==0
:Goto A
:(C*E-B*F)/(A*E-D*B) → X
:(A*F-C*D)/(A*E-D*B) → Y
:Disp X
:Disp Y
:Stop
:Lbl A
:Disp "NO UNIQUE SOLUTION"
```

Sum Program

To use this program, first store the n th term of the sequence in $y1$ (in terms of x).

```
PROGRAM:SUMS
:Prompt M
:Prompt N
:0 → S
:For(x,M,N)
:S+y1 → S
:Disp S
:End
```

TI-92

Simple Interest Program

This program can be used to find the amount of simple interest earned on a given principal at a given annual interest rate for a certain amount of time.

```
:simpint ( )
:Prgm
:setMode("Display Digits", "Fix 2")
:Input "Principal", p
:Input "Interest rate in decimal form", r
:Input "Number of years", t
:p*r*t → i
:Disp "The interest is", i
:setMode("Display Digits", "Float")
:EndPrgm
```

Quadratic Formula Program

This program will display the solutions to quadratic equations or the words "No Real Solution." To use the program, write the quadratic equation in standard form and enter the values of a , b , and c . This program gives both real and complex answers.

```
:quadrat ( )
:Prgm
:setMode("Complex Format",
  "RECTANGULAR")
:Disp "AX^2+BX+C=0"
:Input "Enter A.", a
:Input "Enter B.", b
:Input "Enter C.", c
:b^2-4*a*c → d
:(-b+√(d))/(2*a) → m
:(-b-√(d))/(2*a) → n
:Disp m
:Disp n
:setMode("Complex Format", "REAL")
:EndPrgm
```

Two-Point Form of a Line Program

This program will display the slope and y -intercept of the line that passes through two points, (x_1, y_1) and (x_2, y_2) , entered by the user.

```
:twoptfm ( )
:Prgm
:Disp "ENTER X1, Y1"
:Input x
:Input y
:Disp "ENTER X2, Y2"
:Input c
:Input d
:(d-y)/(c-x) → m
:m*-x+y → b
:Disp "SLOPE ="
:Disp m
:Disp "Y-INT ="
:Disp b
:EndPrgm
```

Reflections and Shifts Program

This program will sketch a graph of the function $y = R(x + H)^2 + V$, where $R = \pm 1$, H is an integer between -6 and 6 , and V is an integer between -3 and 3 . This program gives you practice working with reflections, horizontal shifts, and vertical shifts.

```

Parabola( )
Prgm
ClrHome
ClrIO
setMode("Split Screen",
  "Left-Right")
setMode("Split 1 App","Home")
setMode("Split 2 App","Graph")
-6+int(12rand())→h
-3+int(6rand())→v
rand()→r
If r < .5 Then
  -1→r
  Else
  1→r
EndIf
r*(x+h)^2+v→y1(x)
-9→xmin
9→xmax
1→xscl
-6→ymin
6→ymax
1→yscl
DispG
Disp "y1(x)=r(x+h)^2+v"
Output 20,1,"r=":Output 20,11,r
Output 40,1,"h=":Output 40,11,h
Output 60,1,"v=":Output 60,11,v
Pause
setMode("Split Screen","Full")
EndPrgm

```

Graph Reflection Program

This program will graph a function f and its reflection in the line $y = x$. To use this program, enter the function in $y1$ and set a viewing rectangle.

```

Prgm
103xmin/239→ymin
103xmax/239→ymax

```

```

xscl→yscl
x→y2(x)
DispG
(xmax-xmin)/238→n
xmin→x
While x<xmax
  PtOn y1(x),x
  x+n→x
EndWhile
EndPrgm

```

Systems of Linear Equations Program

This program will display the solution of a system of two linear equations in two variables of the form

$$ax + by = c$$

$$dx + ey = f$$

if a unique solution exists.

```

Solve( )
Prgm
ClrIO
Disp "Ax+By=C"
Input "Enter A.:",a
Input "Enter B.:",b
Input "Enter C.:",c
ClrIO
Disp "Dx+Ey=F"
Input "Enter D.:",d
Input "Enter E.:",e
Input "Enter F.:",f
If a*e-d*b=0 Then
  Disp "No unique solution"
Else
  (c*e-b*f)/(a*e-d*b)→x
  (a*f-c*d)/(a*e-d*b)→y
  Disp x
  Disp y
EndIf
EndPrgm

```

Sum Program

```

Summatn( )
Prgm
Input "Enter lower limit.",m
Input "Enter upper limit.",n
Σ(y1(x),x,m,n)→s
Disp "The partial sum is",s
EndPrgm

```

Casio fx-7700G

Simple Interest Program

This program can be used to find the amount of simple interest earned on a given principal at a given annual interest rate for a certain amount of time.

```
SIMPINT
Fix 2
"PRINCIPAL"? → P
"INTEREST RATE"
"IN DECIMAL FORM"? → R
"NUMBER OF YEARS"? → T
PRT → I
"THE INTEREST IS"
Norm
```

Quadratic Formula Program

This program will display the solutions to quadratic equations or the words "No Real Solution." To use the program, write the quadratic equation in standard form and enter the values of a , b , and c .

```
QUADRATIC
"AX2+BX+C=0"
"A=" → A
"B=" → B
"C=" → C
B2-4AC → D
D<0 ⇒ Goto 1
"X=":(-B+√D)÷(2A)
"OR X=":(-B-√D)÷(2A)
Goto 2
Lbl 1
"NO REAL SOLUTION"
Lbl 2
```

Two-Point Form of a Line

This program will display the slope and y-intercept of the line that passes through two points, (x_1, y_1) and (x_2, y_2) , entered by the user.

```
TWOPTFORM
"ENTER X1, Y1"? → X: ? → Y
"ENTER X2, Y2"? → C: ? → D
(D-Y)÷(C-X) → M
M×(-X)+Y → B
"SLOPE ="
"Y-INT =" : B
```

Reflections and Shifts Program

This program will sketch a graph of the function $y = R(x + H)^2 + V$, where $R = \pm 1$, H is an integer between -6 and 6 , and V is an integer between -3 and 3 . This program gives you practice working with reflections, horizontal shifts, and vertical shifts. Press $\boxed{\text{EXE}}$ after viewing the graph to display the values of the integers.

```
PARABOLA
-6+INT(12Ran#) → H
-3+INT(6Ran#) → V
-1 → R:Ran#<0.5 ⇒ 1 → R
Range -9,9,1,-6,6,1
Graph Y=R(X+H)2+V
"Y=R(X+H)2+V"
"R=":R
"H=":H
"V=":V
```

Graph Reflection Program

This program will graph a function f and its reflection in the line $y = x$. To use this program, enter the function in f_1 .

```
REFLECTION
"GRAPH -A TO A"
"A=" → A
Range -A,A,1,-2A÷3,2A÷3,1
Graph Y=f1
-A → B
Lbl 1
B → X
Plot f1,B
B+A÷32 → B
B≤A ⇒ Goto 1 : Graph Y=X
```

Systems of Linear Equations Program

This program will display the solution of a system of two linear equations in two variables of the form

$$ax + by = c$$

$$dx + ey = f$$

if a unique solution exists.

```

SOLVE
"AX+BY=C"
"A="? → A
"B="? → B
"C="? → C
"DX+EY=F"
"D="? → D
"E="? → E
"F="? → F
AE-DB=0⇒Goto 1
"X=":(CE-BF)÷(AE-DB) ▲
"Y=":(AF-CD)÷(AE-DB)
Goto 2
Lbl 1
"NO UNIQUE SOLUTION"
Lbl 2

```

Sum Program

To use this program, enter the n th term of the sequence into f1 (in terms of X).

```

SUM
"M="? → M
"N="? → N
0 → S
Lbl 1
M → X
S+f1 → S
"S=":S ▲
M+1 → M
M≤N⇒1 Goto 1

```

Casio fx-7700GE
Casio fx-9700GE
Casio CFX-9800G
Casio CFX 9850G

Simple Interest Program

This program can be used to find the amount of simple interest earned on a given principal at a given annual interest rate for a certain amount of time.

```
SIMPINT↵
Fix 2↵
“PRINCIPAL”?→P↵
“INTEREST RATE”↵
“IN DECIMAL FORM”?→R↵
“NUMBER OF YEARS”?→T↵
PRT→I↵
“THE INTEREST IS”:I▲
Norm
```

Quadratic Formula Program

This program will display the solutions to quadratic equations or the words “No Real Solution.” To use the program, write the quadratic equation in standard form and enter the values of a , b , and c .

Casio fx-7700GE

Solutions to quadratic equations are also available directly from the Casio calculator’s EQUATION MODE.

```
QUADRATIC↵
“AX2+BX+C=0”↵
“A”?→A↵
“B”?→B↵
“C”?→C↵
B2-4AC→D↵
D<0⇒Goto 1↵
(-B+√D)÷(2A)▲
(-B-√D)÷(2A)↵
Goto 2↵
Lbl 1↵
“NO REAL SOLUTION”↵
Lbl 2
```

Casio fx-9700GE

Casio CFX-9800G

Casio CFX-9850G

Both real and complex answers are given. Solutions to quadratic equations are also available directly from the Casio calculator’s EQUATION MODE.

```
QUADRATIC↵
“AX2+BX+C=0”↵
“A”?→A↵
“B”?→B↵
“C”?→C↵
B2-4AC→D↵
(-B+√D)÷(2A)▲
(-B-√D)÷(2A)
```

Two-Point Form of a Line

This program will display the slope and y-intercept of the line that passes through two points, (x_1, y_1) and (x_2, y_2) , entered by the user.

```
TWOPTFORM
“ENTER X1, Y1”?→X:Y↵
“ENTER X2, Y2”?→C:Y↵
(D-Y)÷(C-X)→M↵
M×(-X)+Y→B↵
“SLOPE =”:M▲
“Y-INT =”:B
```

Reflections and Shifts Program

This program will sketch a graph of the function $y = R(x + H)^2 + V$, where $R = \pm 1$, H is an integer between -6 and 6 , and V is an integer between -3 and 3 . This program gives you practice working with reflections, horizontal shifts, and vertical shifts. Press $\boxed{\text{EXE}}$ after viewing the graph to display the values of the integers.

Casio fx-7700GE

Casio fx-9700GE

Casio CFX-9800G

```

PARABOLA↵
-6+Int(12Ran#)→H↵
-3+Int(6Ran#)→V↵
Ran#→R↵
R<.5⇒-1→R↵
R≥.5⇒1→R↵
Range -9,9,1,-6,6,1↵
Graph Y=R(X+H)2+V ▲
“Y=R(X+H)2+V”↵
“R=:R ▲
“H=:H ▲
“V=:V

```

Casio CFX-9850G

Use the previous program and replace the line “Range -9,9,1,-6,6,1↵” with “View Window -9,9,1,-6,6,1,↵.”

Graph Reflection Program

This program will graph a function f and its reflection in the line $y = x$. To use this program, enter the function in f_1 .

Casio fx-7700GE

To use this program, enter the function in f_1 .

```

REFLECTION
“GRAPH -A TO A”↵
“A=?”→A↵
Range -A,A,1,-2A÷3,2A÷3,1↵
Graph Y=f1↵
-A→B↵
Lbl 1↵
B→X↵
Plot f1,B↵
B+A÷32→B↵
B≤A⇒Goto1:Graph Y=X

```

Casio fx-9700GE

To use this program, enter a function in f_1 and set a viewing rectangle.

```

REFLECTION↵
63Xmin÷127→A↵
63Xmax÷127→B↵
Xscl→C↵
Range , , , A, B, C↵
(Xmax-Xmin)÷126→I↵
Xmax→M↵
Xmin→D↵
Graph Y=f1↵
Lbl 1↵
D→X↵
Plot f1,D↵
D+I→D↵
D≤M⇒Goto 1:Graph Y=X

```

Casio CFX-9800G

To use this program, enter a function in f_1 and set a viewing rectangle.

```

REFLECTION↵
63Xmin÷95→A↵
63Xmax÷95→B↵
Xscl→C↵
Range , , , A, B, C↵
(Xmax-Xmin)÷94→I↵
Xmax→M↵
Xmin→D↵
Graph Y=f1↵
Lbl 1↵
D→X↵
Plot f1,D↵
D+I→D↵
D≤M⇒Goto 1:Graph Y=X

```

Casio CFX-9850G

Use the program for the Casio fx-9700GE and replace the line “Range , , , A,B,C,↵” with “View Window , , , A,B,C,↵.”

Systems of Linear Equations Program

This program will display the solution of a system of two linear equations in two variables of the form

$$ax + by = c$$

$$dx + ey = f$$

if a unique solution exists. Solutions to systems of linear equations are also available directly from the Casio calculator's EQUATION MENU.

```
SOLVE↵
"AX+BY=C"↵
"A":?→A↵
"B":?→B↵
"C":?→C↵
"DX+EY=F"↵
"D":?→D↵
"E":?→E↵
"F":?→F↵
AE-DB=0⇒Goto 1↵
"X=":(CE-BF)÷(AE-D)↵
"Y=":(AF-CD)÷(AE-DB)↵
Goto 2↵
Lbl 1↵
"NO UNIQUE SOLUTION"↵
Lbl 2
```

Sum Program

To use this program, enter the n th term of the sequence into f_1 (in terms of X).

```
SUM↵
"M="?"→M↵
"N="?"→N↵
0→S↵
Lbl 1↵
M→X↵
S+f1→S↵
"S="↵
M+1→M↵
M≤N⇒1 Goto 1
```

Sharp EL-9200C Sharp EL-9300C

Simple Interest Program

This program can be used to find the amount of simple interest earned on a given principal at a given annual interest rate for a certain amount of time.

```
simpint
-----REAL
Input principal
Print "Interest rate
Print "in decimal form
Input rate
Print "Number of years
Input time
interest=principal*rate*time
Print interest
```

Quadratic Formula Program

This program will display the solutions to quadratic equations or the words "No Real Solution." To use the program, write the quadratic equation in standard form and enter the values of a , b , and c . This program gives both real and complex answers.

```
quadratic
-----COMPLEX
Print "ax^2+bx+c=0"
Input a
Input b
Input c
d=b^2-4a*c
x1=(-b+√ d)/(2a)
x2=(-b-√ d)/(2a)
Print x1
Print x2
End
```

Two-Point Form of a Line

This program will display the slope and y-intercept of the line that passes through two points, (x_1, y_1) and (x_2, y_2) , entered by the user.

```
twoptform
Print "enter x1, y1
Input x
c=x
Input y
d=y
Print "enter x2, y2
Input x
Input y
m=(d-y)/(c-x)
b=m*(-x)+y
Print "slope
Print m
Print "y-int
Print b
```

Reflections and Shifts Program

This program will sketch a graph of the function $y = R(x + H)^2 + V$, where $R = \pm 1$, H is an integer between -6 and 6 , and V is an integer between -3 and 3 . This program gives you practice working with reflections, horizontal shifts, and vertical shifts. Press after viewing the graph to display the values of the integers.

```
parabola
-----REAL
h=int (random*12) -6
v=int (random*6) -3
s=(random*2) -1
r=s/abs s
Range -9,9,1,-6,6,1
Graph r(X+h)^2+v
Wait
Print "y=r(X+h)^2+v
Print r
Print h
Print v
End
```

Graph Reflection Program

This program will graph a function f and its reflection in the line $y = x$. To use this program, replace $f(X)$ with your expression in X .

```

reflection
-----REAL
Goto top
Label equation
Y=f(X)
Return
Label rng
xmin=-10
xmax=10
xstp=(xmax-xmin)/10
ymin=2*xmin/3
ymax=2*xmax/3
ystp=xstp
Range xmin,xmax,xstp,ymin,
    ymax,ystp
Return
Label top
Gosub rng
Graph X
step=(xmax-xmin)/(94*2)
X=xmin
Label 1
Gosub equation
Plot X,Y
Plot Y, X
X=X+step
If X<=xmax Goto 1
End

```

Systems of Linear Equations Program

This program will display the solution of a system of two linear equations in two variables of the form

$$ax + by = c$$

$$dx + ey = f$$

if a unique solution exists. Equations must be entered in the form: $AX + BY = C$; $DX + EY = F$. Uppercase letters are used so that the values can be accessed in the calculation mode of the calculator.

```

solve
-----REAL
Print "AX+BY=C"
Input A
Input B
Input C
Print "DX+EY=F"
Input D
Input E
Input F
If A*E-D*B=0 Goto 1
X=(C*E-B*F)/(A*E-D*B)
Y=(A*F-C*D)/(A*E-D*B)
Print X
Print Y
End
Label 1
Print "no unique solution"
End

```

Sum Program

To use this program, first replace (nth term) with the n th term of the sequence in terms of m . For example, $s=s+2^m$, where 2^m is the n th term of the sequence.

```

sum
-----REAL
Goto top
Label sumit
s=s+(nth term)
Print s
m=m+1
Goto next
Label top
Input m
Input n
s=0
Label next
If m<=n Goto sumit
End

```

HP-38G**Simple Interest Program**

This program can be used to find the amount of simple interest earned on a given principal at a given annual interest rate for a certain amount of time.

```
SIMPINT PROGRAM
INPUT P; "SIMPINT"; "ENTER
PRINCIPAL";1:
INPUT R; "SIMPINT"; "INTEREST RATE IN DECIMAL
FORM";1:
INPUT T; "SIMPINT"; "ENTER NUMBER OF YEARS";1:
P*R*T►I:
DISP 3; "INTEREST IS" I:
FREEZE:
```

Quadratic Formula Program

This program will display the solutions to quadratic equations or the words "No Real Solution." To use the program, write the quadratic equation in standard form and enter the values of a , b , and c . This program displays the answer in complex form (x, y) , where x is the real part and y is the imaginary part.

```
QUADRAT PROGRAM
INPUT A;"AX2+BX+C=0";
"ENTER A";";1:
INPUT B;"AX2+BX+C=0";
"ENTER B";";1:
INPUT C;"AX2+BX+C=0";
"ENTER C";";1:
B2-4AC►D:
(-B+√D)/(2A)►Z1:
(-B+√D)/(2A)►Z2:
DISP 3;Z1:
DISP 5;Z2:
FREEZE
```

Two-Point Form of a Line

This program will display the slope and y-intercept of the line that passes through two points, (x_1, y_1) and (x_2, y_2) , entered by the user.

```
TWOPTFM PROGRAM
INPUT X: "ENTER X1, Y1";
"ENTER X1";";1:
INPUT Y: "ENTER X1, Y1";
"ENTER Y1";";1:
INPUT C: "ENTER X2, Y2";
"ENTER X2";";1:
INPUT D: "ENTER X2, Y2";
"ENTER Y2";";1:
(D-Y)/(C-X)►M
M*-X+Y►B
DISP 1;"SLOPE ="M:
DISP 3;"Y-INT ="B:
FREEZE:
```

Reflections and Shifts Program

This program will sketch a graph of the function $y = R(x + H)^2 + V$, where $R = \pm 1$, H is an integer between -6 and 6 , and V is an integer between -3 and 3 . This program gives you practice working with reflections, horizontal shifts, and vertical shifts.

1. Press `LIB`. Highlight the Function applet. Press `SAVE`. Enter the name PARABOLA for the new applet and press `OK`.
2. Press `SETUP-PLOT` and set XRNG: from -12 to 12 , YRNG: from -6 to 6 , and XTICK: and YTICK: to 1 .
3. Enter the 3 programs
PARABOLA, PARANS, PARABOLA.SV.
4. Run the program
PARABOLA.SV.
5. Enter the PARABOLA applet.
6. Press `VIEWS`. Highlight RUN PARABOLA and press `OK`.
7. After viewing the graph press `VIEWS`. Highlight ANSWER and press `OK` to see the values of the integers.
8. Press `OK` to return to the graph.
9. Repeat steps 6, 7, and 8 for a new parabola.

```
PARABOLA PROGRAM
-6+INT(12RANDOM)►H:
-3+INT(6RANDOM)►V:
RANDOM ►R:
IF R>.5
  THEN -1►R:
  ELSE 1►R:
END:
'R*(X+H)2+V'►F1(X):
CHECK 1:
```

```
PARANS PROGRAM
ERASE:
DISP 2;"Y=R(X+H)2+V":
DISP 3;"R="R:
DISP 4;"H="H:
DISP 5;"V="V:
FREEZE:
```

```
PARABOLA.SV PROGRAM
SETVIEWS "RUN
PARABOLA";PARABOLA;1;
"ANSWER";PARANS;1;
" ";PARABOLA.SV;0;
```

Graph Reflection Program not available

Systems of Linear Equations Program

This program will display the solution of a system of two linear equations in two variables of the form

$$ax + by = c$$

$$dx + ey = f$$

if a unique solution exists.

1. Input the 2 programs SOLVE and SOLVE.SOLN.
2. Run the SOLVE program.

```
SOLVE
SOLVE PROGRAM
INPUT A;"AX+BY=C";
  "ENTER A";" ";1:
INPUT B;"AX+BY=C";
  "ENTER B";" ";1:
INPUT C;"AX+BY=C";
  "ENTER C";" ";1:
INPUT D;"DX+EY=F";
  "ENTER D";" ";1:
INPUT E;"DX+EY=F";
  "ENTER E";" ";1:
INPUT F;"DX+EY=F";
  "ENTER F";" ";1:
ERASE:
IF AE-DB==0
THEN DISP 3; "NO UNIQUE
  SOLUTION":
ELSE RUN "SOLVE.SOLN":
END:
FREEZE:
SOLVE.SOLN PROGRAM
(CE-BF)/(AE-DB)►X:
(AF-CD)/(AE-DB)►Y:
DISP 3;"X="X:
DISP 5;"Y="Y:
```

Sum Program

1. Input the 2 programs SUM and SUM.STEP.
2. Store the n th term of the sequence in the F1 function (in terms of x) in the Function applet. Be sure that F1 is checked.
3. Run the SUM program.

```
SUM
SUM PROGRAM
INPUT M;"LOWER BOUND";
  "ENTER M";" ";1:
INPUT N;"UPPER BOUND";
  "ENTER N";" ";1:
0►S:
ERASE:
SELECT "Function":
FOR I=M TO N
STEP 1;
RUN "SUM.STEP":
END:
SUM.STEP PROGRAM
S+F1(I)►S:
DISP 4;"  "S:
FREEZE:
```