

<pre> <b>PROGRAM:N2GRAPH</b> :FnOff :ClrDraw :PlotsOff :AxesOff:ClrHome :0→R:0→C :For(B,1,1,1) :For(A,1.5,1.5,1) :A+Bi→X :If not(A):Then: Pxl-On(R+1,C+1): Goto U:End :Repeat X<sup>2</sup>=1+0i :(X<sup>2</sup>+1)/(2X)→X :End :If real(X)&gt;.5:Then:Pxl-On(R,C): Pxl-On(R,C+2):Pxl-On(R+1,C+1):Pxl-On(R+2,C):Pxl-On(R+2,C+2):Pxl-On(R,C+1):Pxl-On(R+1,C):Pxl-On(R+1,C+2):Pxl-On(R+2,C+1) :End:Lbl U :C+3→C:If C=93 :Then:0→C:R+3→R :End:End:End :StorePic Pic2 </pre>	<pre> <b>PROGRAM:N3GRAPH</b> :FnOff :ClrDraw :PlotsOff :AxesOff:ClrHome :0→R:0→C :For(B,15,15,1) :For(A,23,23,1) :A/15+(B/15)i→X :If not(A or B):Then:Pxl-On(R,C): Pxl-On(R+1,C+1) :Goto U:End :Repeat X<sup>3</sup>=1+0i :(2X<sup>3</sup>+1)/(3X<sup>2</sup>)→X:End :If imag(X)&lt;.5:Then:Pxl-On(R,C+1): Pxl-On(R+1,C) :If imag(X)&lt;.5:Then:Pxl-On(R,C): Pxl-On(R+1,C+1) :End:End:Lbl U :C+2→C:If C=94 :Then:0→C:R+2→R :End:End:End :StorePic Pic3 </pre> <p><i>On a standard TI-83+, the run time is over an hour for this.</i></p>	<pre> <b>PROGRAM:N3LOOP</b> :For(B,1,1,1) :For(A,1,1,1) :A+Bi→X :If not(A or B) :Then :Output(1,1,"0 +0 i GOES TO:") :Output(2,1,"UNDEFINED") :Goto P :End :Repeat X<sup>3</sup>=1+0i :(2X<sup>3</sup>+1)/(3X<sup>2</sup>)→X :End :ClrHome :Output(1,1,round(A,1)) :If B&lt;0 :Then :Output(1,4,"-") :Else :Output(1,4,"+") :End :Output(1,5,round(abs(B),1)) :Output(1,7,"i GOES TO:") :Output(2,1,X) :Lbl P :Output(5,1,"(PRESS ENTER FOR)") :Output(6,1,"THE NEXT VALUE.") :Pause :Output(5,1,"") :Output(6,1,"") :End :End </pre>	<pre> <b>PROGRAM:N4GRAPH</b> :FnOff :ClrDraw :PlotsOff :AxesOff:ClrHome :0→R:0→C:1→D :For(B,15,15,1) :For(A,23,23,1) :A/15+(B/15)i→X :If not(A or B):Then:Pxl-On(R,C+1):Pxl-On(R+1,C) :Goto U:End :Repeat D&lt;1E<sup>-10</sup> :(3X<sup>4</sup>+1)/(4X<sup>3</sup>)→X :X<sup>4</sup>→Q:abs(1-abs(real(Q)))+abs(imag(Q))→D :End :If imag(X)&lt;.5 :Then :If real(X)&gt;.5:Then:Pxl-On(R,C+1):Pxl-On(R+1,C) :Pxl-On(R+1,C+1) :End:If real(X)&lt;.5:Then:Pxl-On(R,C):End :End:Lbl U :C+2→C:If C=94 :Then:0→C:R+2→R :End:End:End :StorePic Pic4 </pre>
<pre> <b>PROGRAM:NEWTON2</b> :Prompt X :X+0i→X :Repeat X<sup>2</sup>=1+0i :(X<sup>2</sup>+1)/(2X)→X :End :Disp X </pre>	<pre> <b>PROGRAM:NEWTON3</b> :Prompt X :X+0i→X:0→N :Repeat X<sup>3</sup>=1+0i :(2X<sup>3</sup>+1)/(3X<sup>2</sup>)→X:N+1→N :End :Disp "AT ITERATION:",N,"ROOT:",X </pre>		<pre> <b>PROGRAM:NEWTON4</b> :Prompt X :X+0i→X :Repeat X<sup>4</sup>=1+0i :(3X<sup>4</sup>+1)/(4X<sup>3</sup>)→X :End :Disp X </pre>

**PROGRAM: N5GRAPH**

```

:FnOff :ClrDraw
:PlotsOff
:AxesOff:ClrHome
:0→R:0→C:1→D
:For(B,1,1,1)
:For(A,-1.5,1.5,
.1)
:A+Bi→X
:If not(A or B):
Then:Pxl-On(R+1,
C+1):Goto U:End
:Repeat D<1E-10
:(4X^5+1)/(5X^4)
→X
:X^5→Q:abs(1-abs
(real(Q)))+abs(i
mag(Q))→D
:End
:If imag(X)<.8
:Then
:If imag(X)>.3:T
hen:Pxl-On(R,C+1
):Pxl-On(R,C+2):
Pxl-On(R+1,C):Px
l-On(R+1,C+1):Px
l-On(R+2,C):Pxl-
On(R+2,C+2):
:Else
:If imag(X)>.3:
Then:Pxl-On(R,C+
1):Pxl-On(R+1,C+
1):Pxl-On(R+1,C+
2):Pxl-On(R+2,C)
:Else
:If imag(X)>.8:
Then:Pxl-On(R,C+
1):Pxl-On(R+1,C)
:Pxl-On(R+2,C+2)
:Else

```

continued in  
the next  
column.

↙

```

:Pxl-On(R,C):Pxl
-On(R,C+1):Pxl-O
n(R,C+2):Pxl-On(
R+1,C):Pxl-On(R+
1,C+1):Pxl-On(R+
1,C+2):Pxl-On(R+
2,C):Pxl-On(R+2,
C+1):Pxl-On(R+2,
C+2):End:End:End
:End:Lbl U
:C+3→C:If C=93
:Then:0→C:R+3→R
:End:End:End
:StorePic Pic5

```

**PROGRAM: NEWTON5**

```

:Prompt X
:X+0i→X:1→D
:Repeat D<1E-10
:(4X^5+1)/(5X^4)
→X:
:X^5→Q:abs(1-abs
(real(Q)))+abs(i
mag(Q))→D
:End
:Disp X

```

**PROGRAM: SIERPINS**

```

:FnOff :ClrDraw
:PlotsOff
:AxesOff
:0→Xmin:1→Xmax
:0→Ymin:1→Ymax
:rand→X:rand→Y
:For(K,1,2010)
:rand→N
:If N≤1/3:Then
:.5X→X:.5Y→Y
:End
:If 1/3<N and N≤
2/3:Then
:.5(.5+X)→X
:.5(1+Y)→Y
:End
:If 2/3<N:Then
:.5(1+X)→X:.5Y→Y
:End
:If K>10
:Pt-On(X,Y)
:End
:StorePic Pic1

```

**PROGRAM: SLIDESHOW**

```

:FnOff :PlotsOff
:AxesOff
:Prompt A,B
:Lbl T
:For(I,A,B,1)
:ClrDraw
:If I=0
:RecallPic Pic0
:If I=1
:RecallPic Pic1
:If I=2
:RecallPic Pic2
:If I=3
:RecallPic Pic3
:If I=4
:RecallPic Pic4
:If I=5
:RecallPic Pic5
:If I=6
:RecallPic Pic6
:If I=7
:RecallPic Pic7
:If I=8
:RecallPic Pic8
:If I=9
:RecallPic Pic9
:Pause
:End
:Goto T

```

All programs  
written in 2012  
while guest  
teaching at  
Maine Coast  
Waldorf School.  
They are not  
necessarily the  
most efficient.  
If you've got a  
TI-83, though,  
they will do  
the job. (:





TEXAS INSTRUMENTS

TI-83 Plus

N3GRAPH



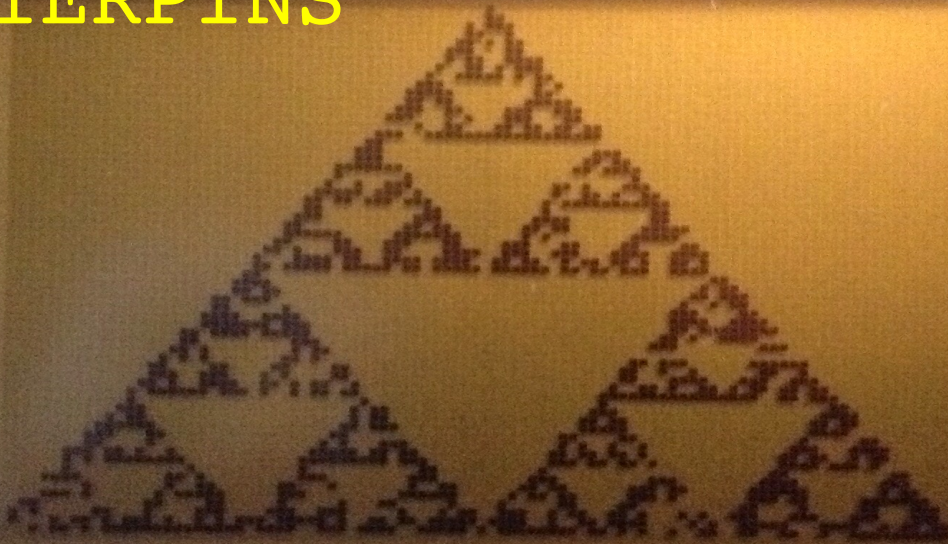
STAT PLOT F1 TBLSET F2 FORMAT F3 CALC F4 TABLE F5



TEXAS INSTRUMENTS

TI-83 Plus

SIERPINS



STAT PLOT F1 TBLSET F2 FORMAT F3 CALC F4 TABLE F5