

Adding Vectors Graphically Program

This program will sketch two vectors in standard position. Using the parallelogram law for the vector addition, the program also sketches the vector sum. Be sure to set an appropriate viewing rectangle.

```
PROGRAM:ADDVECT
:CLRDRAW
:DISP "ENTER(A,B)"
:INPUT "ENTER A",A
:INPUT "ENTER B",B
:DISP "ENTER (C,D)"
:INPUT "ENTER C",C
:INPUT "ENTER D",D
:LINE(0,0,A,B)
:LINE(0,0,C,D)
:A+C→E
:B+D→F
:LINE(0,0,E,F)
:LINE(A,B,E,F)
:LINE(C,D,E,F)
:PAUSE
```

Mandelbrot Set Program

This program can be used to determine if a complex number is in the Mandelbrot Set. The number is entered in two parts, the real part of the complex number and the imaginary part of the complex number. After entering the number, press to see the next number in the sequence. If the terms of the sequence become very large, the sequence is unbounded and the complex number is not in the Mandelbrot Set. Press to quit the program. The program will give an error message when a number exceeds the capacity of the calculator. Press .

```
PROGRAM:MANDLBR
:INPUT "ENTER REAL PART",A
:INPUT "ENTER IMAG PART",B
:A→C:B→D
:0→N
:LBL 1
:CLRHOME
:N+1→N
:DISP "TERM NUMBER",N
:DISP "REAL PART",A
:DISP "IMAG PART",B
:PAUSE
:A→F:B→G
:F2-G2+C→A
:2FG+D→B
:GOTO 1
```

Adding Vectors Graphically Program

This program will sketch two vectors in standard position. Using the parallelogram law for the vector addition, the program also sketches the vector sum. Be sure to set an appropriate viewing rectangle.

```
Prgm1:ADDVECT
:ClrDraw
:Disp "ENTER(A,B)"
:Disp "ENTER A"
:Input A
:Disp "ENTER B"
:Input B
:Disp "ENTER (C,D)"
:Disp "ENTER C"
:Input C
:Disp "ENTER D"
:Input D
:Line(0,0,A,B)
:Line(0,0,C,D)
:A+C→E
:B+D→F
:Line(0,0,E,F)
:Line(A,B,E,F)
:Line(C,D,E,F)
:Pause
:End
```

Mandelbrot Set Program

This program can be used to determine if a complex number is in the Mandelbrot Set. The number is entered in two parts, the real part of the complex number and the imaginary part of the complex number. After entering the number, press to see the next number in the sequence. If the terms of the sequence become very large, the sequence is unbounded and the complex number is not in the Mandelbrot Set. Press to quit the program. The program will give an error message when a number exceeds the capacity of the calculator. Press .

```
Prgm2:MANDLBRT
:Disp "ENTER REAL PART"
:Input A
:Disp "ENTER IMAG PART"
:Input B
:A→C
:B→D
:0→N
:Lbl 1
:ClrHome
:N+1→N
:Disp "TERM NUMBER"
:Disp N
:Disp "REAL PART"
:Disp A
:Disp "IMAG PART"
:Disp B
:Pause
:A→F
:B→G
:F2-G2+C→A
:2FG+D→B
:Goto 1
```

TI-82 TI-83

Adding Vectors Graphically Program

This program will sketch two vectors in standard position. Using the parallelogram law for the vector addition, the program also sketches the vector sum. Be sure to set an appropriate viewing rectangle.

```
PROGRAM:ADDVECT
:ClrDraw
:Input "ENTER A",A
:Input "ENTER B",B
:Input "ENTER C",C
:Input "ENTER D",D
:Line(0,0,A,B)
:Line(0,0,C,D)
:A+C→E
:B+D→F
:Line(0,0,E,F)
:Line(A,B,E,F)
:Line(C,D,E,F)
:Pause
:Stop
```

Mandelbrot Set Program

This program can be used to determine if a complex number is in the Mandelbrot Set. The number is entered in two parts, the real part of the complex number and the imaginary part of the complex number. After entering the number, press **ENTER** to see the next number in the sequence. If the terms of the sequence become very large, the sequence is unbounded and the complex number is not in the Mandelbrot Set. For the *TI-82*, press **ON** **2** to quit the program. For the *TI-83* and *TI-83 Plus*, press **ON** **1** to quit the program. The program will give an error message when a number exceeds the capacity of the calculator. For the *TI-82*, press **2**. For the *TI-83* and *TI-83 Plus*, press **1**.

```
PROGRAM:MANDLBRT
:Input "ENTER REAL PART",A
:Input "ENTER IMAG PART",B
:A→C:B→D
:0→N
:Lbl 1
:ClrHome
:N+1→N
:Disp "TERM NUMBER",N
:Disp "REAL PART",A
:Disp "IMAG PART",B
:Pause
:A→F:B→G
:F2-G2+C→A
:2FG+D→B
:Goto 1
```

TI-85 TI-86

Adding Vectors Graphically Program

This program will sketch two vectors in standard position. Using the parallelogram law for the vector addition, the program also sketches the vector sum. Be sure to set an appropriate viewing rectangle.

```
PROGRAM:ADDVECT
:CIDrw
:Input "enter A",A
:Input "enter B",B
:Input "enter C",C
:Input "enter D",D
:Line(0,0,A,B)
:Line(0,0,C,D)
:A+C→E
:B+D→F
:Line(0,0,E,F)
:Line(A,B,E,F)
:Line(C,D,E,F)
:Pause
:Stop
```

Mandelbrot Set Program

This program can be used to determine if a complex number is in the Mandelbrot Set. The number is entered in two parts, the real part of the complex number and the imaginary part of the complex number. After entering the number, press **ENTER** to see the next number in the sequence. If the terms of the sequence become very large, the sequence is unbounded and the complex number is not in the Mandelbrot Set. Press **ON** **F5** to quit the program. The program will give an error message when a number exceeds the capacity of the calculator. Press **F5**.

```
PROGRAM:MANDLBRT
:Input "ENTER REAL PART",A
:Input "ENTER IMAG PART",B
:A→C:B→D
:0→N
:Lbl Z
:CILCD
:N+1→N
:Disp "TERM NUMBER",N
:Disp "REAL PART",A
:Disp "IMAG PART",B
:Pause
:A→F:B→G
:F2-G2+C→A
:2*F*G+D→B
:Goto Z
```

Adding Vectors Graphically Program

This program will sketch two vectors in standard position. Using the parallelogram law for the vector addition, the program also sketches the vector sum. Be sure to set an appropriate viewing rectangle.

```
:addvect( )
:Prgm
:ClrIO
:Input "ENTER a",a
:Input "ENTER b",b
:Input "ENTER c",c
:Input "ENTER d",d
:ClrDraw
:Line(0,0,a,b)
:Line(0,0,c,d)
:a+c→e
:b+d→f
:Line 0,0,e,f
:Line a,b,e,f
:Line c,d,e,f
:Pause
:setMode("Split 1 App","Home")
:Stop
:EndPrgm
```

Mandelbrot Set Program

This program can be used to determine if a complex number is in the Mandelbrot Set. The number is entered in two parts, the real part of the complex number and the imaginary part of the complex number. After entering the number, press to see the next number in the sequence. If the terms of the sequence become very large, the sequence is unbounded and the complex number is not in the Mandelbrot Set. Press to quit the program. The ∞ symbol will be displayed when a number has exceeded the capacity of the calculator.

```
:mandlbrt( )
:Prgm
:Input "enter real part",a
:Input "enter imaginary part",b
:a→c:b→d
:0→n
:Lbl top
:ClrIO
:n+1→n
:Disp "term number",n
:Disp "real part",a
:Disp "imaginary part",b
:Pause
:a→f:b→g
:f^2-g^2+c→a
:2*f*g+d→b
:Goto top
:EndPrgm
```

Casio fx-7700G

Adding Vectors Graphically Program

This program will sketch two vectors in standard position. Using the parallelogram law for the vector addition, the program also sketches the vector sum. Be sure to set an appropriate viewing rectangle.

```
ADDVECT
Cls
"A="?→A
"B="?→B
"C="?→C
"D="?→D
Plot 0,0
Plot A,B
Line
Plot 0,0
Plot C,D
Line ▲
A+C→E
B+D→F
Plot 0,0
Plot E,F
Line
Plot A,B
Plot E,F
Line
Plot C,D
Plot E,F
Line ▲
```

Mandelbrot Set Program

This program can be used to determine if a complex number is in the Mandelbrot Set. The number is entered in two parts, the real part of the complex number and the imaginary part of the complex number. After entering the number, press **EXE** to see the next number in the sequence. If the terms of the sequence become very large, the sequence is unbounded and the complex number is not in the Mandelbrot Set. When running the program, press **EXE** after each variable is displayed to see the value of the next variable. To quit the program, press **AC** **AC**. The program will give an error message when a number exceeds the capacity of the calculator. Press **AC**.

```
MANDLBRT
"ENTER REAL PART":?→A
"ENTER IMAG PART":?→B
A→C:B→D
0→N
Lbl 1
Cls
N+1→N
"TERM NUMBER":N ▲
"REAL PART":A ▲
"IMAG PART":B ▲
:A→F:B→G
:F2-G2+C→A
:2FG+D→B
:GoTo 1
```

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

Adding Vectors Graphically Program

This program will sketch two vectors in standard position. Using the parallelogram law for the vector addition, the program also sketches the vector sum. Be sure to set an appropriate viewing rectangle.

```

ADDVECT
Cls,↓
“A=”?→A,↓
“B=”?→B,↓
“C=”?→C,↓
“D=”?→D,↓
Plot 0,0,↓
Plot A,B,↓
Line,↓
Plot 0,0,↓
Plot C,D,↓
Line,↓
A+C→E,↓
B+D→F,↓
Plot 0,0,↓
Plot E,F,↓
Line,↓
Plot A,B,↓
Plot E,F,↓
Line,↓
Plot C,D,↓
Plot E,F,↓
Line ▲

```

Mandelbrot Set Program

This program can be used to determine if a complex number is in the Mandelbrot Set. The number is entered in two parts, the real part of the complex number and the imaginary part of the complex number. After entering the number, press **EXE** to see the next number in the sequence. If the terms of the sequence become very large, the sequence is unbounded and the complex number is not in the Mandelbrot Set. When running the program, press **EXE** after each variable is displayed to see the value of the next variable. To quit the program, press **AC/ON** **AC/ON**. The program will give an error message when a number exceeds the capacity of the calculator. Press **AC/ON**.

```

MANDLBRT
“ENTER REAL PART”:?→A,↓
“ENTER IMAG PART”:?→B,↓
A→C:B→D,↓
0→N,↓
Lbl 1,↓
Cls,↓
N+1→N,↓
“TERM NUMBER”:N ▲
“REAL PART”:A ▲
“IMAG PART”:B ▲
A→F:B→G,↓
F2-G2+C→A,↓
2FG+D→B,↓
Goto 1

```

Sharp EL-9200C Sharp EL-9300C

Adding Vectors Graphically Program

This program will sketch two vectors in standard position. Using the parallelogram law for the vector addition, the program also sketches the vector sum. Be sure to set an appropriate viewing rectangle.

```
addvect
-----REAL
ClrG
Input a
Input b
Input c
Input d
Line 0,0,a,b
Line 0,0,c,d
e=a+c
f=b+d
Line 0,0,e,f
Line a,b,e,f
Line c,d,e,f
Wait
End
```

Mandelbrot Set Program

This program can be used to determine if a complex number is in the Mandelbrot Set. The number is entered in two parts, the real part of the complex number and the imaginary part of the complex number. After entering the number, press **ENTER** to see the next number in the sequence. If the terms of the sequence become very large, the sequence is unbounded and the complex number is not in the Mandelbrot Set. To quit the program, press **ON** **CL**. The program will give an error message when a number exceeds the capacity of the calculator. Press **CL**.

```
mandlbrt
-----REAL
Print "enter real part"
Input A
Print "enter imag part"
Input B
c=a
d=b
n=0
Label 1
ClrT
n=n+1
Print "term number"
Print n
Print "real part"
Print a
Print "imag part"
Print b
Wait
f=a
g=b
a=f2-g2+c
b=2f*g+d
Goto 1
```

HP-38G

Adding Vectors Graphically Program

This program will sketch two vectors in standard position. Using the parallelogram law for the vector addition, the program also sketches the vector sum. Be sure to set an appropriate viewing rectangle. The Function applet should have a plot range of $-10 \leq x \leq 10$ and $-10 \leq y \leq 10$.

```
ADDVECT PROGRAM
INPUT A;; "ENTER A";;1:
INPUT B;; "ENTER B";;1:
INPUT C;; "ENTER C";;1:
INPUT D;; "ENTER D";;1:
ERASE:
LINE -10;0;10;0:
LINE 0;-10;0;10:
LINE 0;0;A;B:
LINE 0;0;C;D:
FREEZE:
A+C▶ E
B+D▶ F
LINE 0;0;E;F:
LINE A;B;E;F:
LINE C;D;E;F:
FREEZE
```

Mandelbrot Set Program

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```
MANDLBRT PROGRAM
INPUT A;"ENTER REAL PART";"ENTER A";;"1:
INPUT B;"ENTER IMAG PART";"ENTER B";;"0:
A▶C:
B▶D:
0▶N:
WHILE N<20 REPEAT
  ERASE:
  N+1▶N:
  DISP 1;"TERM NUMBER"N:
  DISP 3;"REAL PART":
  DISP 4;A:
  DISP 6;"IMAG PART":
  DISP 7;B:
  FREEZE:
  A▶F:
  B▶G:
  F2-G2+C▶A:
  2FG+D▶B:
END:
```