

hp 9g

Graphing Calculator

Example 1

■ Change 123 × 45 to 123 × 475

123 [×] 45 [$\frac{\square}{\square}$]

1 2 3 * 4 5 $\uparrow$
 $\square$ 5535.

[>] [>] [>] [DEL]

1 2 * 4 5 $\uparrow$
 $\square$

[2nd] [$\curvearrowright$]

1 2 3 * 4 5 $\uparrow$
 $\square$

[>] [>] 7 [$\frac{\square}{\square}$]

1 2 3 * 4 7 5 $\uparrow$
 $\square$ 58425.

Example 2

■ After executing 1 + 2, 3 + 4, 5 + 6, recall each expression

1 [+] 2 [$\frac{\square}{\square}$] 3 [+] 4 [$\frac{\square}{\square}$] 5 [+] 6 [$\frac{\square}{\square}$]

5 + 6 $\uparrow$
 $\square$ 11.

[$\blacktriangle$]

5 + 6 $\uparrow$
 $\square$

[$\blacktriangle$]

3 + 4 $\updownarrow$
 $\square$

[$\blacktriangle$]

1 + 2 $\downarrow$
 $\square$

Example 3

■ Enter 14 ÷ 0 × 2.3 and then correct it to 14 ÷ 10 × 2.3

14 [÷] 0 [×] 2.3 [$\frac{\square}{\square}$]

D I V I D E B Y 0
 $\square$

(after 5 Seconds)

1 4 / 0 $\blacktriangleleft$ 2 . 3 $\uparrow$
 $\square$

[$\blacktriangleleft$] 1 [$\frac{\square}{\square}$]

1 4 / 1 0 * 2 . 3 $\uparrow$
 $\square$ 3.22

Example 4

■ [((3 × 5) + (56 ÷ 7)) − (74 − 8 × 7)] = 5

3 [×] 5 [M+]

3 * 5 $\uparrow$
 $\square$ M 15.

56 [÷] 7 [M+]

5 6 / 7 $\uparrow$
 $\square$ M 8.

[MRC] [$\frac{\square}{\square}$]

M $\uparrow$
 $\square$ M 23.

74 [−] 8 [×] 7 [2nd] [M−]

7 4 − 8 * 7 $\uparrow$
 $\square$ M 18.

[MRC] [$\frac{\square}{\square}$]

M $\uparrow$
 $\square$ M 5.

[MRC] [MRC] [$\frac{\square}{\square}$]

$\blacktriangleleft$ $\uparrow$
 $\square$

Example 5

■ (1) Assign 30 into variable A

[2nd] [CL-VAR] 30 [SAVE] [A] [$\frac{\square}{\square}$]

3 0 $\rightarrow$ A $\uparrow$
 $\square$ 30.

■ (2) Multiply variable A by 5 and assign the result to variable B

5 [×] [2nd] [RCL]

A B C D E F $\downarrow$
G H I
J K L $\square$ 30.

[$\frac{\square}{\square}$] [$\frac{\square}{\square}$]

5 * 3 0 $\uparrow$
 $\square$ 150.

[SAVE] [B] [$\frac{\square}{\square}$]

A n s $\rightarrow$ B $\uparrow$
 $\square$ 150.

■ (3) Add 3 to variable B

[ALPHA] [B]

B $\blacktriangleleft$ $\uparrow$
 $\square$

[+] 3 [$\frac{\square}{\square}$]

B + 3 $\uparrow$
 $\square$ 153.

■ (4) Clear all variables

[2nd] [CL-VAR] [2nd] [RCL]

A B C D E F $\downarrow$
G H I
J K L $\square$

Example 6

■ (1) Set PROG 1 = cos (3A) + sin (5B), where A = 0, B = 0

[cos] 3 [ALPHA] [A] [>] [+] [sin] 5 [ALPHA] [B] [>]

3 A) + s i n (5 B) $\blacktriangleleft$ $\updownarrow$
 $\square$

[SAVE] [PROG] 1

(5 B) $\rightarrow$ PROG 1 $\blacktriangleleft$ $\updownarrow$
 $\square$

[$\frac{\square}{\square}$]

c o s (3 A) + s i n $\updownarrow$
 $\square$ 1.

■ (2) Set A = 20, B = 18, get PROG 1 = cos (3A) + sin (5B) = 1.5

[PROG] 1 [$\frac{\square}{\square}$] [$\frac{\square}{\square}$] [$\frac{\square}{\square}$] 20

A = 20 $\blacktriangleleft$ $\uparrow$
 $\square$

[$\frac{\square}{\square}$] [$\frac{\square}{\square}$] 18

B = 18 $\blacktriangleleft$ $\uparrow$
 $\square$

[$\frac{\square}{\square}$]

c o s (3 A) + s i n $\updownarrow$
 $\square$ 1.5

Example 7

■ (1) Expand the number of memories from 26 to 28

[MATH] [MATH] [MATH] [MATH] [$\blacktriangledown$]

0 n P r 1 n C r $\uparrow$
2 D e f m $\square$

[$\frac{\square}{\square}$] 2

D e f m 2 $\blacktriangleleft$ $\uparrow$
 $\square$

[$\frac{\square}{\square}$]

M − 2 8 S − 3 7 6 $\uparrow$
 $\square$

■ (2) Assign 66 to variable A [27]

66 [SAVE] [A] [ALPHA] [[]] 27 [$\frac{\square}{\square}$]

6 6 $\rightarrow$ A [2 7] $\uparrow$
 $\square$ 66.

■ (3) Recall variable A [27]

[ALPHA] [A] [ALPHA] [[]] 27 [$\frac{\square}{\square}$]

A [2 7] $\uparrow$
 $\square$ 66.

■ (4) Return memory variables to the default configuration

[MATH] [MATH] [MATH] [MATH] [$\blacktriangledown$]

0 n P r 1 n C r $\uparrow$
2 D e f m $\square$

[$\frac{\square}{\square}$] 0 [$\frac{\square}{\square}$]

M − 2 6 S − 4 0 0 $\uparrow$
 $\square$

Example 8

■ 7 + 10 × 8 ÷ 2 = 47

7 [+] 10 [×] 8 [÷] 2 [$\frac{\square}{\square}$]

7 + 10 * 8 / 2 $\uparrow$
 $\square$ 47.

Example 9

■ − 3.5 + 8 ÷ 4 = − 1.5

[(−)] 3.5 [+] 8 [÷] 4 [$\frac{\square}{\square}$]

− 3 . 5 + 8 / 4 $\uparrow$
 $\square$ − 1.5

Example 10

■ 12369 × 7532 × 74103 = 6903680613000

12369 [×] 7532 [×] 74103 [$\frac{\square}{\square}$]

1 2 3 6 9 * 7 5 3 2 * $\updownarrow$
 $\square$ 6.903680613 $\times 10^{12}$

Example 11

■ 6 ÷ 7 = 0.857142857

6 [÷] 7 [$\frac{\square}{\square}$]

6 / 7 $\uparrow$
 $\square$ 0.857142857

[2nd] [FIX] [>] [>] [>]

F 0 1 2 3 4 5 6 7 8 9 $\square$

[$\frac{\square}{\square}$]

6 / 7 $\uparrow$
 $\square$ 0.86 FIX

[2nd] [FIX] 4

6 / 7 $\uparrow$
 $\square$ 0.8571 FIX

[2nd] [FIX] [•]

6 / 7 $\uparrow$
 $\square$ 0.857142857

Example 12

■ 1 ÷ 6000 = 0.0001666...

1 [÷] 6000 [$\frac{\square}{\square}$]

1 / 6 0 0 0 $\uparrow$
 $\square$ 0.000166667

[2nd] [SCI / ENG] [>]

F L O S C I E N G $\square$

[$\frac{\square}{\square}$]

1 / 6 0 0 0 $\uparrow$
 $\square$ 1.666666667 $\times 10^{-04}$ SCI

[2nd] [SCI / ENG] [>]

F L O S C I E N G $\square$

[$\frac{\square}{\square}$]

1 / 6 0 0 0 $\uparrow$
 $\square$ 166.6666667 $\times 10^{-06}$ ENG

[2nd] [SCI / ENG] [>]

F L O S C I E N G $\square$ ENG

[$\frac{\square}{\square}$]

1 / 6 0 0 0 $\uparrow$
 $\square$ 0.000166667

Example 13

■ 0.0015 = 1.5 × 10^{−3}

1.5 [EXP] [(−)] 3 [$\frac{\square}{\square}$]

1 . 5 E − 3 $\uparrow$
 $\square$ 0.0015

Example 14

■ 20 G byte + 0.15 K byte = 2.000000015 × 10¹⁰ byte

20 [2nd] [ENG SYM] [>] [>]

0 K 1 M 2 G $\downarrow$
3 T 4 P
5 E $\square$

[$\frac{\square}{\square}$] [+] 0.15 [2nd] [ENG SYM]

0 K 1 M 2 G $\downarrow$
3 T 4 P
5 E $\square$

[$\frac{\square}{\square}$] [$\frac{\square}{\square}$]

2 0 G + 0 . 1 5 K $\uparrow$
 $\square$ 2.000000015 $\times 10^{10}$

Example 15

■ (5 − 2 × 1.5) × 3 = 6

[()] 5 [−] 2 [×] 1.5 [>] [×] 3 [$\frac{\square}{\square}$]

(5 − 2 * 1 . 5) * 3 $\updownarrow$
 $\square$ 6.

Example 16

■ 2 × { 7 + 6 × (5 + 4) } = 122

2 [×] [()] 7 [+] 6 [×] [()] 5 [+] 4 [$\frac{\square}{\square}$]

2 * (7 + 6 * (5 + 4) $\updownarrow$
 $\square$ 122.

Example 17

■ 120 × 30 % = 36

120 [×] 30 [2nd] [%] [$\frac{\square}{\square}$]

1 2 0 * 3 0 % $\uparrow$
 $\square$ 36.

■ 88 ÷ 55% = 160

88 [÷] 55 [2nd] [%] [$\frac{\square}{\square}$]

8 8 / 5 5 % $\uparrow$
 $\square$ 160.

Example 18

■ 3 × 3 × 3 × 3 = 81

3 [×] 3 [$\frac{\square}{\square}$]

3 * 3 $\uparrow$
 $\square$ 9.

[×] 3 [$\frac{\square}{\square}$]

A n s * 3 $\uparrow$
 $\square$ 27.

[$\frac{\square}{\square}$]

A n s * 3 $\uparrow$
 $\square$ 81.

■ Calculate ÷ 6 after calculating 3 × 4 = 12

3 [×] 4 [$\frac{\square}{\square}$]

3 * 4 $\uparrow$
 $\square$ 12.

[÷] 6 [$\frac{\square}{\square}$]

A n s / 6 $\uparrow$
 $\square$ 2.

Example 19

■ 123 + 456 = 579 $\rightarrow$ 789 − 579 = 210

123 [+] 456 [$\frac{\square}{\square}$]

1 2 3 + 4 5 6 $\uparrow$
 $\square$ 579.

789 [−] [2nd] [ANS] [$\frac{\square}{\square}$]

7 8 9 − A n s $\uparrow$
 $\square$ 210.

Example 20

■ ln7 + log100 = 3.945910149

[ln] 7 [>] [+] [log] 100 [$\frac{\square}{\square}$]

l n (7) + l o g (1 $\updownarrow$
 $\square$ 3.945910149

■ 10² = 100

[2nd] [10^x] 2 [$\frac{\square}{\square}$]

1 0 ^ (2) $\uparrow$
 $\square$ 100.

■ e^{−3} = 0.006737947

[2nd] [e^x] [(−)] 5 [$\frac{\square}{\square}$]

e ^ (− 5) $\uparrow$
 $\square$ 0.006737947

Example 21

■ 7² ÷ 14⁵ = 22⁸ ÷ 21

7 [A^{b/c}] 2 [A^{b/c}] 3 [+] 14 [A^{b/c}] 5 [A^{b/c}] 7 [$\frac{\square}{\square}$]

7 $\downarrow$ 2 $\downarrow$ 3 + 1 4 $\downarrow$ 5 $\downarrow$ $\updownarrow$
 $\square$ 22 $\downarrow$ 8 $\downarrow$ 21

Example 22

■ 4 $\frac{2}{4}$ = 4 $\frac{1}{2}$

4 [A^{b/c}] 2 [A^{b/c}] 4 [$\frac{\square}{\square}$]

4 $\downarrow$ 2 $\downarrow$ 4 $\uparrow$
 $\square$ 4 $\cup$ 1 $\downarrow$ 2

[2nd] [A^{b/c} $\blacktriangleleft$ $\blacktriangleright$ ^{d/e}] [$\frac{\square}{\square}$]

A n s $\blacktriangleright$ A^{b/c} $\blacktriangleleft$ $\blacktriangleright$ d/e $\uparrow$
 $\square$ 9 $\downarrow$ 2

[2nd] [A^{b/c} $\blacktriangleleft$ $\blacktriangleright$ ^{d/e}] [$\frac{\square}{\square}$]

A n s $\blacktriangleright$ A^{b/c} $\blacktriangleleft$ $\blacktriangleright$ d/e $\uparrow$
 $\square$ 4 $\cup$ 1 $\downarrow$ 2

Example 23

■ 4 $\frac{1}{2}$ = 4.5

4 [A^{b/c}] 1 [A^{b/c}] 2 [2nd] [F $\blacktriangleleft$ $\blacktriangleright$ D] [$\frac{\square}{\square}$]

4 $\downarrow$ 1 $\downarrow$ 2 $\blacktriangleright$ F $\blacktriangleleft$ $\blacktriangleright$ D $\uparrow$
 $\square$ 4.5

Example 24

■ 8 $\frac{4}{5}$ + 3.75 = 12.55

8 [A^{b/c}] 4 [A^{b/c}] 5 [+] 3.75 [$\frac{\square}{\square}$]

8 $\downarrow$ 4 $\downarrow$ 5 + 3.75 $\uparrow$
 $\square$ 12.55

Example 25

■ 2 π rad. = 360 deg.

[DRG]

D E G R A D G R D $\square$

[$\frac{\square}{\square}$] 2 [2nd] [π] [2nd] [DMS] [>] [>] [>]

° ' " r g $\blacktriangleright$ DMS $\square$

[$\frac{\square}{\square}$] [$\frac{\square}{\square}$]

2 π r $\uparrow$
 $\square$ 360.

Example 26

■ 1.5 = 1° 30' 0" (DMS)

1.5 [2nd] [DMS] [$\blacktriangleleft$]

° ' " r g $\blacktriangleright$ DMS $\square$

[$\frac{\square}{\square}$] [$\frac{\square}{\square}$]

1.5 $\blacktriangleright$ DMS $\uparrow$
 $\square$ 1° 30' 0"

Example 27

■ 2⁰ 45¹ 10.5¹¹ = 2.752916667

2 [2nd] [DMS]

° ' " r g $\blacktriangleright$ DMS $\square$

[$\frac{\square}{\square}$] 45 [2nd] [DMS] [>]

° 1 " r g $\blacktriangleright$ DMS $\square$

[$\frac{\square}{\square}$] 10.5 [2nd] [DMS] [>] [>]

° ' " r g $\blacktriangleright$ DMS $\square$

[$\frac{\square}{\square}$] [$\frac{\square}{\square}$]

2 ° 4 5 ' 1 0 . 5 " $\uparrow$
 $\square$ 2.752916667

Example 28

■ sin30 Deg. = 0.5

[DRG]

D E G R A D G R D $\square$

[$\frac{\square}{\square}$] [sin] 30 [$\frac{\square}{\square}$]

s i n (3 0) $\uparrow$
 $\square$ 0.5

■ sin30 Rad. = − 0.988031624

[DRG] [>]

D E G R A D G R D $\square$

[$\frac{\square}{\square}$] [sin] 30 [$\frac{\square}{\square}$]

s i n (3 0) $\uparrow$
 $\square$ − 0.988031624

■ sin^{−1} 0.5 = 33.33333333 Grad.

[DRG] [>]

D E G R A D G R D $\square$

[$\frac{\square}{\square}$] [2nd] [sin^{−1}] 0.5 [$\frac{\square}{\square}$]

s i n ^{−1} (0 . 5) $\uparrow$
 $\square$ 33.33333333

Example 29

■ cosh1.5+2 = 4.352409615

[2nd] [HYP] [cos] 1.5 [>] [+] 2 [$\frac{\square}{\square}$]

c o s h (1 . 5) + 2 $\updownarrow$
 $\square$ 4.352409615

■ sinh^{−1} 7 = 2.644120761

[2nd] [HYP] [2nd] [sin^{−1}] 7 [$\frac{\square}{\square}$]

s i n h ^{−1} (7) $\uparrow$
 $\square$ 2.644120761

Example 30

■ If x = 5 and y = 30, what are r and θ ? Ans : r = 30.41381265, θ = 80.53767779°

[2nd] [R $\blacktriangleleft$ $\blacktriangleright$ P]

R $\blacktriangleright$ P r R $\blacktriangleright$ P θ
P $\blacktriangleright$ R x
P $\blacktriangleright$ R y $\square$

[$\frac{\square}{\square}$] 5 [ALPHA] [$\blacktriangleright$] 30 [$\frac{\square}{\square}$]

R $\blacktriangleright$ P r (5 , 30) $\uparrow$
 $\square$ 30.41381265

[2nd][R◀▶P][▶]

R▶PrR▶P0

P▶Rx

P▶Ry

[ENTER]5[ALPHA][↵]30

[ENTER]

R▶P0(5,30)

80.53767779

■ If r = 25 and $\theta = 56^\circ$ what are x and y? Ans : x = 13.97982259, y = 20.72593931

[2nd][R◀▶P][▼]

R▶PrR▶P0

P▶Rx

P▶Ry

[ENTER]25[ALPHA][↵]

56[ENTER]

P▶Rx(25,56)

13.97982259

[2nd][R◀▶P][▼][▼]

R▶PrR▶P0

P▶Rx

P▶Ry

[ENTER]25[ALPHA][↵]

56[ENTER]

P▶Ry(25,56)

20.72593931

Example 31

■ 5! = 120

5[MATH]

0!1RAND↓

2RANDI

3RND

[ENTER][ENTER]

5!

120.

■ Generate a random number between 0 and 1

[MATH][▶]

0!1RAND↓

2RANDI

3RND

[ENTER][ENTER]

RAND

0.103988648

■ Generate a random integer between 7 and 9

[MATH][▼]

0!1RAND↓

2RANDI

3RND

[ENTER]7[ALPHA][↵]

9[ENTER]

RANDI(7,9)

8.

■ $RND(\sin 45 \text{ Deg.}) = 0.71$ (FIX = 2)

[MATH][▼][▼]

0!1RAND↓

2RANDI

3RND

[ENTER][sin]45[2nd]

[FIX][▶][▶][▶]

F0123456789

[ENTER][ENTER]

RND(sin(45))

0.71

FIX

■ $MAX(\sin 30 \text{ Deg.}, \sin 90 \text{ Deg.}) = MAX(0.5, 1) = 1$

[MATH][MATH]

0MAX1MIN↑↓

2SUM

3AVG

[ENTER][sin]30

[▶][ALPHA][↵][sin]90

[ENTER]

MAX(sin(30))

1.

■ $MIN(\sin 30 \text{ Deg.}, \sin 90 \text{ Deg.}) = MIN(0.5, 1) = 0.5$

[MATH][MATH][▶]

0MAX1MIN↑↓

2SUM

3AVG

[ENTER][sin]30

[▶][ALPHA][↵][sin]90

[ENTER]

MIN(sin(30))

0.5

■ $SUM(13, 15, 23) = 51$

[MATH][MATH][▼]

0MAX1MIN↑↓

2SUM

3AVG

[ENTER]13[ALPHA][↵]15

[ALPHA][↵]23[ENTER]

SUM(13,15,2)

51.

■ $AVG(13, 15, 23) = 17$

[MATH][MATH][▼][▼]

0MAX1MIN↑↓

2SUM

3AVG

[ENTER]13[ALPHA][↵]15

[ALPHA][↵]23[ENTER]

AVG(13,15,2)

17.

■ $Frac(10\div 8) = Frac(1.25) = 0.25$

[MATH][MATH][MATH]

0Frac1INT↑↓

2SGN

3ABS

[ENTER]10[÷]8[ENTER]

Frac(10/8)

0.25

■ $INT(10\div 8) = INT(1.25) = 1$

[MATH][MATH][MATH]

0Frac1INT↑↓

2SGN

3ABS

[ENTER]10[÷]8[ENTER]

INT(10/8)

1.

■ $SGN(\log 0.01) = SGN(-2) = -1$

[MATH][MATH][MATH]

0Frac1INT↑↓

2SGN

3ABS

[ENTER][log]0.01[ENTER]

SGN(log(0.0))

-1.

■ $ABS(\log 0.01) = ABS(-2) = 2$

[MATH][MATH][MATH]

0Frac1INT↑↓

2SGN

3ABS

[ENTER][log]0.01[ENTER]

ABS(log(0.0))

2.

■ $7! \div [(7-4)!] = 840$

7[MATH][MATH][MATH]

0nPr1nCr↑

2Defm

[ENTER]4[ENTER]

7nPr4

840.

■ $7! \div [(7-4)! \times 4] = 35$

7[MATH][MATH][MATH]

0nPr1nCr↑

2Defm

[ENTER]4[ENTER]

7nCr4

35.

Example 32

■ $\frac{1}{1.25} = 0.8$

1.25[2nd][X⁻¹][ENTER]

1.25⁻¹

0.8

■ $2^2 + \sqrt{4 + 21} + \sqrt[3]{27} = 12$

2[X²][+][√]4[+]21

[▶][+][2nd][$\sqrt[3]{}$]27

[ENTER]

2² + √(4 + 21) + $\sqrt[3]{27}$

12.

■ $\sqrt[4]{81} = 3$

4[2nd][$\sqrt[x]{}$]81[ENTER]

4 $\sqrt[4]{81}$

3.

■ $7^4 = 2401$

7[2nd][^]4[ENTER]

7^4

2401.

Example 33

■ $1 \text{ yd}^2 = 9 \text{ ft}^2 = 0.000000836 \text{ km}^2$

1[2nd][CONV][2nd]

[CONV][▶]

→ft²yd²m²↓

mile²

km²

[ENTER]

ft²yd²m²↓

mile²

km²

[◀]

ft²yd²m²↓

mile²

km²

[▼][▼]

ft²yd²m²↓

mile²

km²

0.000000836

Example 34

■ $3 \times G = 2.00177955 \times 10^{-10}$

3[×][2nd][CONST][▼]

[▼]

0c1Vm2NA↓

3g4me

5G6mP

[ENTER][ENTER]

3 * G

2.00177955

$\times 10^{-10}$

Example 35

■ Apply the multi-statement function to the following two statements: (E=15)

$\begin{cases} E \times 13 = 195 \\ 180 \div E = 12 \end{cases}$

15[SAVE][E][ENTER]

15→E

15.

[ALPHA][E][×]13

[ALPHA][$\blacktriangleleft$]180[÷]

[ALPHA][E][ENTER]

E * 13 ◀ 180 / E

195.

[ENTER]

E * 13 ◀ 180 / E

12.

[ENTER]

E * 13 ◀ 180 / E

195.

Example 36

■ Graph $Y = e^x$

[Graph][2nd][e^x]

r a p h Y = e ^ (◀ ◀↑

[ENTER]

Example 37

■ (1) Range : X min = - 180, X max = 180, X scl = 90, Y min = - 1.25, Y max = 1.25, Y scl = 0.5, Graph $Y = \sin(2x)$

[Range][(-)]180

Xmin = - 180 ◀

[▼]180[▼]90[▼]

[(-)]1.25[▼]1.25[▼]

0.5

Yscl = 0.5 ◀

[▼][2nd][Factor]2

Xfact = 2 ◀

[▼]2

Yfact = 2 ◀

[ENTER][Graph][sin]2

[ALPHA][X]

p h Y = sin (2 X ◀◀↑

[ENTER]

[G◀▶T]

◀

[G◀▶T]

■ (2) Zoom in and zoom out on $Y = \sin(2x)$

[2nd][Zoom x f]

[2nd][Zoom x f]

[2nd][Zoom Org]

[2nd][Zoom x 1 / f]

[2nd][Zoom x 1 / f]

Example 38

■ Superimpose the graph of $Y = -X + 2$ over the graph of $Y = X^3 + 3X^2 - 6X - 8$

[Range][(-)]8[▼]8[▼]

2[▼][(-)]15[▼]15

[▼]5

Yscl = 5 ◀

[ENTER][Graph][ALPHA]

[X][2nd][x³][+]3

[ALPHA][X][x²][-]6

[ALPHA][X][-]8

[ENTER]

X³ + 3X² - 6X - 8 ◀◀↑

[ENTER]

[Graph][(-)][ALPHA][X]

[+]2

r a p h Y = - X + 2 ◀◀

[ENTER]

Example 39

■ Superimpose the graph of $Y = \cos(X)$ over the graph of $Y = \sin(x)$

[Graph][sin][ENTER]

[Graph][cos][ALPHA][X]

[ENTER]

Example 40

■ Use Trace function to analyze the graph $Y = \cos(x)$

[Graph][cos][ENTER]

[Trace]

[▶][▶][▶]

[2nd][X◀▶Y]

Example 41

■ Draw and scroll the graph for $Y = \cos(x)$

[Graph][cos][ENTER]

[▲]

[▶][▶]

[◀][◀][◀][◀][▼]

Example 42

■ Place points at (5 , 5), (5 , 10), (15 , 15) and (18 , 15), and then use the Line function to connect the points.

[Range]0[▼]35[▼]5

[▼]0[▼]23[▼]5

Yscl = 5 ◀

[ENTER][2nd][PLOT]5

[ALPHA][↵]5

PLOT(5,5 ◀

[ENTER]

[2nd][X◀▶Y]

[2nd][PLOT]15[ALPHA]

[↵]15[ENTER][2nd]

[LINE][ENTER]

[2nd][PLOT]18[ALPHA]

[↵]15[ENTER][▶][▶]

[▶][▶][▶][▶][▶]

[▶]

[2nd][LINE][ENTER]

Example 43

■ Enter the data: $X_{LSL} = 2$, $X_{USL} = 13$, $X_1 = 3$, $FREQ_1 = 2$, $X_2 = 5$, $FREQ_2 = 9$, $X_3 = 12$, $FREQ_3 = 7$, then find $\bar{X} = 7.5$, $S_x = 3.745585637$, $Cax = 0$, and $Cpx = 0.503655401$

[MODE]1

1-VAR2-VAR

REG

D-CL

STAT

[ENTER][DATA][▼]

DATA-INPUT

LIMIT

DISTR

STAT

[ENTER]2

XLSL = 2 ◀

[▼]13[ENTER]

XUSL = 13

[DATA]

DATA-INPUT

LIMIT

DISTR

STAT

[ENTER]3

X₁ = 3 ◀

[▼]2

FREQ₁ = 2 ◀

[▼]5[▼]9[▼]12

[▼]7

FREQ₃ = 7 ◀

[2nd][STATVAR]

n $\bar{x}$ S_xσ_x↓

RxXmax

CVxXmin

STAT

[▶]

n $\bar{x}$ S_xσ_x↓

RxXmax

CVxXmin

STAT

[▶]

n $\bar{x}$ S_xσ_x↓

RxXmax

CVxXmin

STAT

