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***fx-115ES***

***fx-570ES***

***fx-991ES***

***Appendix      Appendiks***

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***Appendice      Appendiks***

***附録      Aanhangsel***

***부속 자료      Приложение***

***ملحق      Függetelék***

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***Appendice      附录***

***Bilaga***

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RCA502126-001V01

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**#001****MATH**
 $\frac{2}{3}$   $\frac{1}{2}$   $+$   
 $\frac{1}{2}$   $\frac{1}{2}$   $=$ 

$$\frac{2}{3} + \frac{1}{2} = \frac{7}{6}$$

**LINE**
 $2 \times 3 + 1 \times 2$   
 $= 7$ 

$$2 \times 3 + 1 \times 2 = 7$$

**#002**

$$3\frac{1}{4} + 1\frac{2}{3} = 4\frac{11}{12}$$

**MATH**
 $3 \frac{1}{4} + 1 \frac{2}{3}$   
 $= 4 \frac{11}{12}$ 

$$3\frac{1}{4} + 1\frac{2}{3} = 4\frac{11}{12}$$

 $3 \frac{1}{4} + 1 \frac{2}{3}$   
 $= 4 \frac{11}{12}$ 

$$3\frac{1}{4} + 1\frac{2}{3} = 4\frac{11}{12}$$

**LINE**
 $3 \times 1 \div 4 + 1 \times 2 \div 3$   
 $= 4 \frac{11}{12}$ 

$$3 \times 1 \div 4 + 1 \times 2 \div 3 = 4 \frac{11}{12}$$

$$4 - 3\frac{1}{2} = \frac{1}{2}$$

**MATH**
 $4 - 3 \frac{1}{2}$   
 $= \frac{1}{2}$ 

$$4 - 3\frac{1}{2} = \frac{1}{2}$$

**LINE**
 $4 - 3 \times 1 \div 2$   
 $= 1 \frac{1}{2}$ 

$$4 - 3 \times 1 \div 2 = 1 \frac{1}{2}$$

**#003** **LINE**

2 SHIFT (C) (%) =

$$2\%$$

$$0.02$$
**#004** **LINE**1 5 0 X 2 0  
SHIFT (C) (%) =
$$150 \times 20\%$$

$$30$$
**#005** **LINE**6 6 0 ÷ 8 8 0  
SHIFT (C) (%) =
$$660 \div 880\%$$

$$75$$
**#006** **LINE**2 5 0 0 + 2 5 0 0  
X 1 5 SHIFT (C) (%) =
$$2500 + 2500 \times 15\%$$

$$2875$$
**#007** **LINE**3 5 0 0 - 3 5 0 0  
X 2 5 SHIFT (C) (%) =
$$3500 - 3500 \times 25\%$$

$$2625$$
**#008** **LINE**1 6 8 + 9 8 +  
7 3 4 =
$$168 + 98 + 734$$

$$1000$$

= Ans X 2 0 SHIFT (C) (%) =

$$\text{Ans} - \text{Ans} \times 20\%$$

$$800$$

**#009** **LINE**

( 5 0 0 + 3 0 0 )  
 ÷ 5 0 0 SHIFT ( (%) =

$(500+300) \div 500\%$   
 160

**#010** **LINE**

( 4 6 - 4 0 ) ÷  
 4 0 SHIFT ( (%) =

$(46-40) \div 40\%$   
 15

▶ ▶ ▶ ▶ DEL 8 =

$(48-40) \div 40\%$   
 20

**#011** **LINE**

2 0 3 0 =

$2^{\circ}0'30''$   
 $2^{\circ}0'30''$

**#012** **LINE**

2 0 3 0 +  
 0 3 9 3 0 =

$2^{\circ}20'30'' + 0^{\circ}39'3''$   
 $3^{\circ}0'0''$

**#013** **LINE**

2 . 2 5 5 =

2.255  
 2.255

2.255  
 $2^{\circ}15'18''$

2.255  
2.255

**#014** **LINE**  $4 \times 3 + 2.5 = 14.5$   
 $4 \times 3 - 7.1 = 4.9$

**4** **×** **3** **+** **2** **.** **5** **=**

4×3+2.5  
14.5

**AC**

|  
0

**◀**

4×3+2.5|  
0

**DEL** **DEL** **DEL** **DEL**

4×3|  
0

**=** **7** **.** **1** **=**

4×3-7.1  
4.9

**#015** **LINE**  $\frac{9 \times 6 + 3}{5 \times 8} = 1.425$

**9** **×** **6** **+** **3**  
**SHIFT** **RCL** **(STO)** **◻** **(B)**

9×6+3÷B  
57

**5** **×** **8** **SHIFT** **RCL** **(STO)** **◻** **(C)**

5×8÷C  
40

$\alpha$   $\frac{\square}{\square}$  (B)  $\div$   $\alpha$  hyp (C)  $\equiv$

B $\div$ C

1.425

**#016**

**LINE**

$\alpha$  S $\div$ D (Y)  $\alpha$  CALC (=)  $\alpha$   $\square$  (X)  
 $\div$  2  $\alpha$   $\square$  (A)

Y=X+2A

0

CALC

X?

0

\*1

1  $\equiv$

A?

0

\*2

1  $\equiv$

Y=X+2A

3

\*3

CALC

X?

1

\*4

Ans  $\equiv$

A?

1

\*5

2  $\equiv$

Y=X+2A

7

\*6

CALC Ans = 3 =

$$Y = X + 2A$$

13

\*7

CALC Ans = 4 =

$$Y = X + 2A$$

21

\*8

# #017 MATH

ALPHA S-D (Y) ALPHA CALC (=) ALPHA ) (X)  $X^2$  - ALPHA ) (X) + 1

$$Y = X^2 - X + 1$$

SHIFT CALC (SOLVE)

$$Y?$$

21

\*1

3 =

$$\text{Solve for } X$$

1

\*2

1 =

$$Y = X^2 - X + 1$$

$$X = 2$$

$$L-R = 0$$

= 7 = =

$$Y = X^2 - X + 1$$

$$X = 3$$

$$L-R = 0$$

= 1 3 = =

$$Y = X^2 - X + 1$$

$$X = 4$$

$$L-R = 0$$

$\equiv$   $\boxed{2}$   $\boxed{1}$   $\equiv$   $\equiv$

$Y=X^2-X+1$   
 $X=$   
 $L-R=$

Math ▲

5  
0

**#018** **LINE** **Deg**

$\sin$   $\boxed{3}$   $\boxed{0}$   $\boxed{)}$   $\equiv$

$\sin(30)$

0.5

$\text{SHIFT}$   $\sin$  ( $\sin^{-1}$ )  $\boxed{0}$   $\boxed{\cdot}$   $\boxed{5}$   $\boxed{)}$   $\equiv$

$\sin^{-1}(0.5)$

30

**#019** **LINE**

$\text{hyp}$   $\boxed{1}$  ( $\sinh$ )  $\boxed{1}$   $\boxed{)}$   $\equiv$

$\sinh(1)$

1.175201194

$\text{hyp}$   $\boxed{5}$  ( $\cosh^{-1}$ )  $\boxed{1}$   $\boxed{)}$   $\equiv$

$\cosh^{-1}(1)$

0

**#020** **LINE** **Deg**

$\cos$   $\text{SHIFT}$   $\boxed{\times 10^{-1}}$  ( $\pi$ )  $\text{SHIFT}$   $\text{Ans}$  (DRG▶)  
 $\boxed{2}$  (r)  $\boxed{)}$   $\equiv$

$\cos(\pi^r)$

-1

$\cos$   $\boxed{1}$   $\boxed{0}$   $\boxed{0}$   $\text{SHIFT}$   $\text{Ans}$  (DRG▶)  
 $\boxed{3}$  (g)  $\boxed{)}$   $\equiv$

$\cos(100^g)$

0



**#021** **MATH****Deg**SHIFT COS (cos<sup>-1</sup>) (→) 1 )  
=cos<sup>-1</sup>(-1)  
180**Rad**SHIFT COS (cos<sup>-1</sup>) (→) 1 )  
=cos<sup>-1</sup>(-1)  
 $\pi$ **#022**  $\log_2 16 = 4$ **MATH**log<sub>a</sub> 2 ► 1 6 =log<sub>2</sub>(16)  
4**LINE**log 2 SHIFT ) (, )  
1 6 ) =log(2, 16)  
4**#023** **LINE**  $\log 16 = 1.204119983$ 

log 1 6 ) =

log(16)  
1.204119983

\*1 \_\_\_\_\_

**#024** **LINE** $\ln 90 (= \log_e 90) = 4.49980967$ 

ln 9 0 ) =

ln(90)  
4.49980967 $\ln e = 1$ ln ALPHA  $\times 10^x$  (e) ) =ln(e)  
1

**#025** **LINE**  $e^{10} = 22026.46579$

SHIFT ln (e<sup>■</sup>) 1 0 =

e^(10  
22026.46579

**#026** **MATH**

$1.2 \times 10^3 = 1200$

1 . 2 × 10<sup>3</sup> =  
SHIFT log (10<sup>■</sup>) 3 =

1.2×10<sup>3</sup>  
1200

$(1 + 1)^{2+2} = 16$

( 1 + 1 ) ^ 2 + 2 =  
=

(1+1)<sup>2+2</sup>  
16

**#027**

$(5^2)^3 = 15625$

**MATH**

( 5 x<sup>2</sup> )  
SHIFT x<sup>2</sup> (x<sup>3</sup>) =

(5<sup>2</sup>)<sup>3</sup>  
15625

$(\sqrt{2} + 1)(\sqrt{2} - 1) = 1$

LINE ( √ 2 ) + 1 )  
( √ 2 ) - 1 ) =

(√(2)+1)(√(2)-1)  
1

$5\sqrt[5]{32} = 2$

5 SHIFT x<sup>■</sup> (√<sup>■</sup>) 3 2 ) =

5×√(32)  
2

**#028** **LINE**  $(-2)^{\frac{2}{3}} = 1.587401052$

( (-) 2 ) x<sup>■</sup>  
2 = 3 ) =

(-2)^(2/3)  
1.587401052

**#029** **LINE**  $\sqrt[3]{5} + \sqrt[3]{-27} = -1.290024053$

$\text{SHIFT}$   $\sqrt{\square}$  ( $\sqrt[3]{\square}$ ) 5  $\text{)}$   $+$   
 $\text{SHIFT}$   $\sqrt{\square}$  ( $\sqrt[3]{\square}$ )  $(-)$  2 7  $\text{)}$   $=$

$$\sqrt[3]{(5)} + \sqrt[3]{(-27)}$$

$$-1.290024053$$

**#030** **LINE**  $\frac{1}{\frac{1}{3} - \frac{1}{4}} = 12$

$($  3  $\text{x}^{\square}$   $-$  4  $\text{x}^{\square}$   $)$   $\text{x}^{\square}$   $=$

$$(3^{-1} - 4^{-1})^{-1}$$

$$12$$

**#031**

**MATH**  $\int_{\square}^{\square}$   $\ln$   $\text{ALPHA}$   $\text{)}$  (X)  $\text{)}$   
 $\text{v}$  1  $\text{^}$   $\text{ALPHA}$   $\text{x10}^{\square}$  (e)  $=$

$$\int_1^e \ln(X) dx$$

$$1$$

**LINE**  $\int_{\square}^{\square}$   $\ln$   $\text{ALPHA}$   $\text{)}$  (X)  $\text{)}$   
 $\text{SHIFT}$   $\text{)}$  (,) 1  $\text{SHIFT}$   $\text{)}$  (,)  $\text{ALPHA}$   $\text{x10}^{\square}$  (e)  $\text{)}$   $=$

$$\int(\ln(X), 1, e)$$

$$1$$

**#032** **LINE**

$\int_{\square}^{\square}$  1  $\div$   $\text{ALPHA}$   $\text{)}$  (X)  $\text{x}^2$   
 $\text{SHIFT}$   $\text{)}$  (,) 1  $\text{SHIFT}$   $\text{)}$  (,) 5  
 $\text{SHIFT}$   $\text{)}$  (,) 1  $\text{x10}^{\square}$   $(-)$  7  $\text{)}$   $=$

$$\int(1 \div X^2, 1, 5, 1 \times 10^{-7})$$

$$0.8$$

**#033** **Rad**

**MATH**  $\text{SHIFT}$   $\int_{\square}^{\square}$   $(\frac{d}{dx})$   $\sin$   
 $\text{ALPHA}$   $\text{)}$  (X)  $\text{)}$   $\text{v}$   $\text{SHIFT}$   $\text{x10}^{\square}$  ( $\pi$ )  $\text{v}$  2  $=$

$$\frac{d}{dx}(\sin(X)) \Big|_{x=\frac{\pi}{2}}$$

$$0$$

**LINE**  $\text{SHIFT}$   $\int_{\square}^{\square}$   $(\frac{d}{dx})$   $\sin$   
 $\text{ALPHA}$   $\text{)}$  (X)  $\text{)}$   $\text{SHIFT}$   $\text{)}$  (,)  $\text{SHIFT}$   $\text{x10}^{\square}$  ( $\pi$ )  $\text{v}$  2  $\text{)}$   $=$

$$d/dx(\sin(X), \pi, 2)$$

$$0$$

**#034** **LINE**

SHIFT  $\int \frac{d}{dx}$  3 ALPHA ) (X)  
 $x^2$  - 5 ALPHA ) (X) + 2  
 SHIFT ) (, 2 SHIFT ) (,  
 1  $\times 10^x$  (-) 1 2 ) =

$$\frac{d}{dx}(3x^2 - 5x + 2, 2) = 7$$

**#035****MATH**

SHIFT  $\log_{\square}$  ( $\Sigma$  -) ALPHA ) (X)  
 + 1  $\nabla$  1  $\blacktriangle$  5 =

$$\sum_{x=1}^5 (X+1) = 20$$

**LINE**

SHIFT  $\log_{\square}$  ( $\Sigma$  -) ALPHA ) (X)  
 + 1 SHIFT ) (,  
 1 SHIFT ) (, 5 ) =

$$\Sigma(X+1, 1, 5) = 20$$

**#036** **Deg**  $(X, Y) = (\sqrt{2}, \sqrt{2}) \rightarrow (r, \theta)$ **MATH**

SHIFT + (Pol)  $\sqrt{\square}$  2  $\blacktriangleright$   
 SHIFT ) (,  $\sqrt{\square}$  2  $\blacktriangleright$  ) =

$$\text{Pol}(\sqrt{2}, \sqrt{2}) = r=2, \theta=45$$

**LINE**

SHIFT + (Pol)  $\sqrt{\square}$  2 )  
 SHIFT ) (,  $\sqrt{\square}$  2 ) ) =

$$\text{Pol}(\sqrt{2}, \sqrt{2}) = r=2, \theta=45$$

**#037** **LINE** **Deg**  $(r, \theta) = (2, 30) \rightarrow (X, Y)$ 

SHIFT - (Rec) 2 SHIFT ) (,  
 3 0 ) =

$$\text{Rec}(2, 30) = X=1.732050808, Y=1$$

**#038** **LINE**

( 5 + 3 ) SHIFT  $x^y$  (x!) =

$$(5+3)! = 40320$$

**#039****MATH**

**SHIFT** **hyp** (Abs) **2** **=** **7** **=**

$|2-7|$

5

**LINE**

**SHIFT** **hyp** (Abs) **2** **=** **7** **)** **=**

Abs(2-7)

5

**#040****LINE**

**1** **0** **0** **0**  
**SHIFT** **•** (Ran#) **=**

1000Ran#

662

**=**

1000Ran#

73

**=**

1000Ran#

165

**#041****LINE**

**1** **0** **SHIFT** **×** (*nPr*) **4** **=**

10P4

5040

**1** **0** **SHIFT** **÷** (*nCr*) **4** **=**

10C4

210

**#042** **MATH** **Rad**

$\int \frac{1}{x} dx$  ( ) sin ALPHA ( ) (X) ( )  
 $+$  cos ALPHA ( ) (X) ( )  
 ( )  $x^2$  ( ) 0 ( ) SHIFT  $x10^x$  ( ) ( )  $\pi$  =

$$\int_0^{\pi} (\sin(X) + \cos(X)) dx$$

**#043** **MATH**

5 SHIFT RCL (STO) ( ) (A)  
 ALPHA  $x10^x$  (e) - SHIFT log ( ) ( ) =  
 1 ( ) ALPHA ( ) (X) SHIFT  $x^y$  (x!)  
 ( ) ( ) 0 ( ) ALPHA ( ) (A) =

$$e^{-\sum_{x=0}^5 \left( \frac{1}{x!} \right)}$$

1 0 SHIFT RCL (STO) ( ) (A)  
 ( ) =

$$e^{-\sum_{x=0}^5 \left( \frac{1}{x!} \right)}$$

1 5 SHIFT RCL (STO) ( ) (A)  
 ( ) =

$$e^{-\sum_{x=0}^5 \left( \frac{1}{x!} \right)}$$

**#044** **LINE**

1 2 3 4 =

$$1234$$

ENG

$$1234$$

ENG

$$1234$$

**#045** **LINE**

1 2 3 =

123

123

SHIFT ENG (←)

123

$0.123 \times 10^{-3}$

SHIFT ENG (←)

123

$0.000123 \times 10^6$

**#046** **MATH**SHIFT  $\times 10^x$  ( $\pi$ )  $\times$   $\frac{\square}{\square}$  2  $\nabla$  5 =

$\pi \times \frac{2}{5}$

$\frac{2}{5}\pi$

S $\rightarrow$ D

$\pi \times \frac{2}{5}$

1.256637061

**#047** **MATH** $\sqrt{\square}$  2  $\rightarrow$   $\times$   $\sqrt{\square}$  3 =

$\sqrt{2} \times \sqrt{3}$

$\sqrt{6}$

S $\rightarrow$ D

$\sqrt{2} \times \sqrt{3}$

2.449489743

**#048** **LINE**

( 1 + 3 i )  $\div$

( 2 i ) =

CMPLX  $\div$

$(1+3i) \div (2i)$

$3 \div 2$   
 $-1 \div 2i$

**#049****LINE****Deg**

$\boxed{1} \boxed{+} \boxed{i}$   
 $\boxed{\text{SHIFT}} \boxed{2} (\text{CMPLX}) \boxed{3} (\rightarrow r \angle \theta) \boxed{=}$

CMPLX  $\text{D}$   $\blacktriangle$   
 $1+i \rightarrow r \angle \theta$   
 1.414213562  
 $\angle 45$

**#050****MATH**

$\boxed{\text{SHIFT}} \boxed{2} (\text{CMPLX}) \boxed{2} (\text{Conjg})$   
 $\boxed{2} \boxed{+} \boxed{3} \boxed{i} \boxed{)} \boxed{=}$

CMPLX  $\text{D}$  Math  $\blacktriangle$   
 Conjg(2+3i)  
 2-3i

**#051****MATH****Deg**

\*1  $\boxed{\text{SHIFT}} \boxed{\text{hyp}} (\text{Abs}) \boxed{2} \boxed{+}$   
 $\boxed{2} \boxed{i} \boxed{=}$

CMPLX  $\text{D}$  Math  $\blacktriangle$   
 $|2+2i|$   
 $2\sqrt{2}$

\*2  $\boxed{\text{SHIFT}} \boxed{2} (\text{CMPLX}) \boxed{1} (\text{arg})$   
 $\boxed{2} \boxed{+} \boxed{2} \boxed{i} \boxed{)} \boxed{=}$

CMPLX  $\text{D}$  Math  $\blacktriangle$   
 arg(2+2i)  
 45

**#052**

$$\bar{x} = \frac{\sum x}{n}$$

$$x\sigma_n = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

$$x\sigma_{n-1} = \sqrt{\frac{\sum (x - \bar{x})^2}{n-1}}$$



# #053

SHIFT MODE  $\blacktriangledown$  4 (STAT) 1 (ON)  
MODE 3 (STAT)

1: 1-VAR	2: A+BX
3: $-+CX^2$	4: $\ln X$
5: $e^X$	6: $A \cdot B^X$
7: $A \cdot X^B$	8: $1/X$

1 (1-VAR)

STAT		FREQ	
X			
1			
2			
3			

1 = 2 = 3 = 4 =  
5 = 6 = 7 = 8 =  
9 = 1 0 =

STAT		FREQ	
X			
9			
10			
11			

AC

STAT		FREQ	
X			

# #054

SHIFT 1 (STAT) 2 (Data)

STAT		FREQ	
X			
1			
2			
3			

1

SHIFT 1 (STAT) 3 (Edit) 1 (Ins)

STAT		FREQ	
X			
1			
2			
3			

0

$\blacktriangledown$   $\blacktriangledown$   $\blacktriangledown$   $\blacktriangledown$   $\blacktriangledown$   $\blacktriangledown$   $\blacktriangledown$   $\blacktriangledown$  DEL

STAT		FREQ	
X			
7			
8			
9			

9

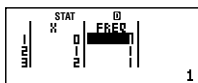
AC

STAT		FREQ	
X			

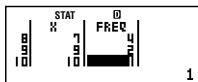
0

# #055

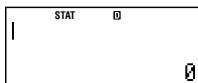
**SHIFT** **1** (STAT) **2** (Data) **▶**



**▼** **2** **=** **▼** **2** **=** **2** **=**  
**2** **=** **3** **=** **4** **=** **2** **=**

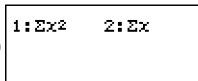


**AC**

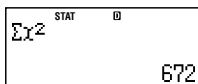


# #056

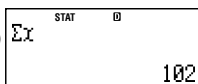
**SHIFT** **1** (STAT) **4** (Sum)



**1** ( $\Sigma x^2$ ) **=**

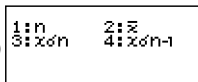


**SHIFT** **1** (STAT) **4** (Sum)  
**2** ( $\Sigma x$ ) **=**

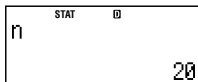


# #057

**SHIFT** **1** (STAT) **5** (Var)



**1** (n) **=**



**SHIFT** **1** (STAT) **5** (Var) **2** ( $\bar{x}$ ) **=**

STAT 0  
 $\bar{x}$   
5.1

**SHIFT** **1** (STAT) **5** (Var)  
**3** ( $\sigma n$ ) **=**

STAT 0  
 $\sigma n$   
2.754995463

## #058

**SHIFT** **1** (STAT) **6** (MinMax)

1:minX 2:maxX

**1** (minX) **=**

STAT 0  
minX  
0

**SHIFT** **1** (STAT) **6** (MinMax)  
**2** (maxX) **=**

STAT 0  
maxX  
10

## #059

**SHIFT** **1** (STAT) **7** (Distr)

1:P( 2:Q(  
3:R( 4:►t

**1** (P( ) **3** **SHIFT** **1** (STAT)  
**7** (Distr) **4** (►t) **)** **=**

STAT 0  
P(3►t)  
0.22296

**SHIFT** **1** (STAT) **7** (Distr)  
**3** (R( ) **7** **SHIFT** **1** (STAT)  
**7** (Distr) **4** (►t) **)** **=**

STAT 0  
R(7►t)  
0.24521

**#060**

$$\bar{x} = \frac{\Sigma x}{n}$$

$$x\sigma_n = \sqrt{\frac{\Sigma (x - \bar{x})^2}{n}}$$

$$x\sigma_{n-1} = \sqrt{\frac{\Sigma (x - \bar{x})^2}{n-1}}$$

$$\bar{y} = \frac{\Sigma y}{n}$$

$$y\sigma_n = \sqrt{\frac{\Sigma (y - \bar{y})^2}{n}}$$

$$y\sigma_{n-1} = \sqrt{\frac{\Sigma (y - \bar{y})^2}{n-1}}$$

$$A = \frac{\Sigma y - B \cdot \Sigma x}{n}$$

$$B = \frac{n \cdot \Sigma xy - \Sigma x \cdot \Sigma y}{n \cdot \Sigma x^2 - (\Sigma x)^2}$$

$$r = \frac{n \cdot \Sigma xy - \Sigma x \cdot \Sigma y}{\sqrt{\{n \cdot \Sigma x^2 - (\Sigma x)^2\} \{n \cdot \Sigma y^2 - (\Sigma y)^2\}}}$$

$$\hat{x} = \frac{y - A}{B}$$

$$\hat{y} = A + Bx$$

# #061

$x$	$y$	$x$	$y$
1.0	1.0	2.1	1.5
1.2	1.1	2.4	1.6
1.5	1.2	2.5	1.7
1.6	1.3	2.7	1.8
1.9	1.4	3.0	2.0

[SHIFT] [MODE] [▼] [4] (STAT) [2] (OFF)  
 [MODE] [3] (STAT)

1: 1-VAR    2: A+BX  
 3:  $\Sigma +CX^2$     4:  $\ln X$   
 5:  $e^X$     6:  $A \cdot B^X$   
 7:  $A \cdot X^B$     8:  $1/X$

[2] (A+BX) [1] [=]

STAT		Y	
X			
1.0			
1.2			
1.5			
1.6			
1.9			

[1] [.] [2] [=]    [1] [.] [5] [=]  
 [1] [.] [6] [=]    [1] [.] [9] [=]  
 [2] [.] [1] [=]    [2] [.] [4] [=]  
 [2] [.] [5] [=]    [2] [.] [7] [=]  
 [3] [=]

STAT		Y	
X			
1.0			
1.2			
1.5			
1.6			
1.9			

[▼] [▶] [1] [=]

STAT		Y	
X			
1.0			
1.2			
1.5			
1.6			
1.9			

[1] [.] [1] [=]    [1] [.] [2] [=]  
 [1] [.] [3] [=]    [1] [.] [4] [=]  
 [1] [.] [5] [=]    [1] [.] [6] [=]  
 [1] [.] [7] [=]    [1] [.] [8] [=]  
 [2] [=]

STAT		Y	
X			
1.0			
1.2			
1.5			
1.6			
1.9			

[AC]

STAT		Y	
X			
1.0			
1.2			
1.5			
1.6			
1.9			

## #062

**SHIFT** **1** (STAT) **4** (Sum)

1: $\Sigma x^2$	2: $\Sigma x$
3: $\Sigma y^2$	4: $\Sigma y$
5: $\Sigma xy$	6: $\Sigma x^3$
7: $\Sigma x^2y$	8: $\Sigma x^4$

**5** ( $\Sigma xy$ ) **=**

STAT 0

$\Sigma xy$

30.96

**SHIFT** **1** (STAT) **5** (Var)

1: $n$	2: $\bar{x}$
3: $x\sigma n$	4: $x\sigma n-1$
5: $\bar{y}$	6: $y\sigma n$
7: $y\sigma n-1$	

**3** ( $x\sigma n$ ) **=**

STAT 0

$x\sigma n$

0.63

**SHIFT** **1** (STAT) **6** (MinMax)

1: $\min x$	2: $\max x$
3: $\min y$	4: $\max y$

**4** ( $\max Y$ ) **=**

STAT 0

$\max Y$

2

## #063

**SHIFT** **1** (STAT) **7** (Reg)

1: $A$	2: $B$
3: $r$	4: $\bar{x}$
5: $\phi$	

**1** ( $A$ ) **=**

STAT 0

$A$

0.5043587805

**SHIFT** **1** (STAT) **7** (Reg)  
**2** (B) **=**

STAT 0  
B  
0.4802217183

**SHIFT** **1** (STAT) **7** (Reg) **3** (r) **=**

STAT 0  
r  
0.9952824846

## #064

\*1 **(-)** **3** **SHIFT** **1** (STAT)  
**7** (Reg) **4** ( $\hat{x}$ ) **=**

STAT 0  
-3  
-7.297376705

\*2 **2** **SHIFT** **1** (STAT) **7** (Reg)  
**5** ( $\hat{y}$ ) **=**

STAT 0  
2  
1.464802217

## #065

$$A = \frac{\sum y}{n} - B \left( \frac{\sum x}{n} \right) - C \left( \frac{\sum x^2}{n} \right)$$

$$B = \frac{S_{xy} \cdot S_{x^2x^2} - S_{x^2y} \cdot S_{xx^2}}{S_{xx} \cdot S_{x^2x^2} - (S_{xx^2})^2}$$

$$C = \frac{S_{x^2y} \cdot S_{xx} - S_{xy} \cdot S_{xx^2}}{S_{xx} \cdot S_{x^2x^2} - (S_{xx^2})^2}$$

$$S_{xx} = \sum x^2 - \frac{(\sum x)^2}{n}$$

$$S_{xy} = \sum xy - \frac{(\sum x \cdot \sum y)}{n}$$

$$S_{xx^2} = \sum x^3 - \frac{(\sum x \cdot \sum x^2)}{n}$$

$$S_{x^2x^2} = \sum x^4 - \frac{(\sum x^2)^2}{n}$$

$$Sx^2y = \Sigma x^2y - \frac{(\Sigma x^2 \cdot \Sigma y)}{n}$$

$$\hat{x}_1 = \frac{-B + \sqrt{B^2 - 4C(A - y)}}{2C}$$

$$\hat{x}_2 = \frac{-B - \sqrt{B^2 - 4C(A - y)}}{2C}$$

$$\hat{y} = A + Bx + Cx^2$$

# #066

**SHIFT** **1** (STAT) **1** (Type)

1: 1-VAR	2: A+BX
3: $\frac{1}{n}$ +CX <sup>2</sup>	4: 1/n X
5: $\frac{1}{n}$ X	6: A·B <sup>X</sup>
7: A·X <sup>B</sup>	8: 1/X

**3** ( $\frac{1}{n}$  +CX<sup>2</sup>)

STAT		0
X	Y	
1.2	1.1	
1.5	1.2	

1

**AC**

STAT		0

0

# #067

**SHIFT** **1** (STAT) **7** (Reg)

1: A	2: B
3: C	4: $\frac{1}{A}$
5: $\frac{1}{B}$	6: $\frac{1}{C}$

**1** (A) **=**

STAT		0
A		
0.7028598638		

**SHIFT** **1** (STAT) **7** (Reg)  
**2** (B) **=**

STAT		0
B		
0.2576384379		



**SHIFT** **1** (STAT) **7** (Reg)  
**3** (C) **=**

STAT 0  
 C  
 0.05610274153

# #068

$$y = 3 \rightarrow \hat{x}_1 = ?$$

**3** **SHIFT** **1** (STAT) **7** (Reg)  
**4** ( $\hat{x}_1$ ) **=**

STAT 0  
 3 $\hat{x}_1$   
 4.502211457

$$y = 3 \rightarrow \hat{x}_2 = ?$$

**3** **SHIFT** **1** (STAT) **7** (Reg)  
**5** ( $\hat{x}_2$ ) **=**

STAT 0  
 3 $\hat{x}_2$   
 -9.094472563

$$x = 2 \rightarrow \hat{y} = ?$$

**2** **SHIFT** **1** (STAT) **7** (Reg)  
**6** ( $\hat{y}$ ) **=**

STAT 0  
 2 $\hat{y}$   
 1.442547706

# #069

$$A = \frac{\sum y - B \cdot \sum \ln x}{n}$$

$$B = \frac{n \cdot \sum (\ln x)y - \sum \ln x \cdot \sum y}{n \cdot \sum (\ln x)^2 - (\sum \ln x)^2}$$

$$r = \frac{n \cdot \sum (\ln x)y - \sum \ln x \cdot \sum y}{\sqrt{\{n \cdot \sum (\ln x)^2 - (\sum \ln x)^2\} \{n \cdot \sum y^2 - (\sum y)^2\}}}$$

$$\hat{x} = e^{\frac{y-A}{B}}$$

$$\hat{y} = A + B \ln x$$

**#070**

$$A = \exp\left(\frac{\sum \ln y - B \cdot \sum x}{n}\right)$$

$$B = \frac{n \cdot \sum x \ln y - \sum x \cdot \sum \ln y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$r = \frac{n \cdot \sum x \ln y - \sum x \cdot \sum \ln y}{\sqrt{\{n \cdot \sum x^2 - (\sum x)^2\} \{n \cdot \sum (\ln y)^2 - (\sum \ln y)^2\}}}$$

$$\hat{x} = \frac{\ln y - \ln A}{B}$$

$$\hat{y} = A e^{Bx}$$

**#071**

$$A = \exp\left(\frac{\sum \ln y - B \cdot \sum x}{n}\right)$$

$$B = \exp\left(\frac{n \cdot \sum x \ln y - \sum x \cdot \sum \ln y}{n \cdot \sum x^2 - (\sum x)^2}\right)$$

$$r = \frac{n \cdot \sum x \ln y - \sum x \cdot \sum \ln y}{\sqrt{\{n \cdot \sum x^2 - (\sum x)^2\} \{n \cdot \sum (\ln y)^2 - (\sum \ln y)^2\}}}$$

$$\hat{x} = \frac{\ln y - \ln A}{\ln B}$$

$$\hat{y} = A B^x$$

**#072**

$$A = \exp\left(\frac{\sum \ln y - B \cdot \sum \ln x}{n}\right)$$

$$B = \frac{n \cdot \sum \ln x \ln y - \sum \ln x \cdot \sum \ln y}{n \cdot \sum (\ln x)^2 - (\sum \ln x)^2}$$

$$r = \frac{n \cdot \sum \ln x \ln y - \sum \ln x \cdot \sum \ln y}{\sqrt{\{n \cdot \sum (\ln x)^2 - (\sum \ln x)^2\} \{n \cdot \sum (\ln y)^2 - (\sum \ln y)^2\}}}$$

$$\hat{x} = e^{\frac{\ln y - \ln A}{B}}$$

$$\hat{y} = Ax^B$$

**#073**

$$A = \frac{\sum y - B \cdot \sum x^{-1}}{n}$$

$$B = \frac{S_{xy}}{S_{xx}}$$

$$r = \frac{S_{xy}}{\sqrt{S_{xx} \cdot S_{yy}}}$$

$$S_{xx} = \sum (x^{-1})^2 - \frac{(\sum x^{-1})^2}{n}$$

$$S_{yy} = \sum y^2 - \frac{(\sum y)^2}{n}$$

$$S_{xy} = \sum (x^{-1})y - \frac{\sum x^{-1} \cdot \sum y}{n}$$

$$\hat{x} = \frac{B}{y - A}$$

$$\hat{y} = A + \frac{B}{x}$$

# #074

**SHIFT** **1** (STAT) **1** (Type)

1: 1-VAR	2: A+BX
3: -+CX <sup>2</sup>	4: 1n X
5: e^X	6: A•B^X
7: A•X^B	8: 1/X

**4** (ln X) **AC** **SHIFT** **1** (STAT)  
**7** (Reg) **3** (r) **=**

STAT 0  
r  
0.9753724902

**SHIFT** **1** (STAT) **1** (Type)  
**5** (e^X) **AC** **SHIFT** **1** (STAT)  
**7** (Reg) **3** (r) **=**

STAT 0  
r  
0.9967116738

**SHIFT** **1** (STAT) **1** (Type)  
**6** (A•B^X) **AC** **SHIFT** **1** (STAT)  
**7** (Reg) **3** (r) **=**

STAT 0  
r  
0.9967116738

**SHIFT** **1** (STAT) **1** (Type)  
**7** (A•X^B) **AC** **SHIFT** **1** (STAT)  
**7** (Reg) **3** (r) **=**

STAT 0  
r  
0.9917108781

**SHIFT** **1** (STAT) **1** (Type)  
**8** (1/X) **AC** **SHIFT** **1** (STAT)  
**7** (Reg) **3** (r) **=**

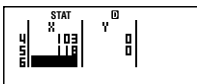
STAT 0  
r  
-0.9341328778

# #075 $y = A + B \ln x$

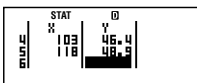
$x$	$y$
29	1.6
50	23.5
74	38.0
103	46.4
118	48.9

[SHIFT] [MODE] [4] (STAT) [2] (OFF)  
 [MODE] [3] (STAT) [4] (ln X)

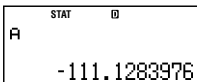
[2] [9] [=] [5] [0] [=] [7] [4] [=]  
 [1] [0] [3] [=] [1] [1] [8] [=]



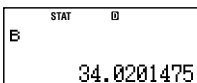
[2] [9] [=] [5] [0] [=] [7] [4] [=]  
 [1] [0] [3] [=] [1] [1] [8] [=]  
 [3] [8] [=] [4] [6] [=] [4] [8] [=]



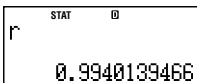
[AC] [SHIFT] [1] (STAT) [7] (Reg)  
 [1] (A) [=]



[SHIFT] [1] (STAT) [7] (Reg)  
 [2] (B) [=]

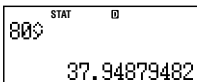


[SHIFT] [1] (STAT) [7] (Reg)  
 [3] (r) [=]



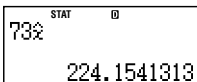
$x = 80 \rightarrow \hat{y} = ?$

[8] [0] [SHIFT] [1] (STAT) [7] (Reg)  
 [5] ( $\hat{y}$ ) [=]



$y = 73 \rightarrow \hat{x} = ?$

[7] [3] [SHIFT] [1] (STAT) [7] (Reg)  
 [4] ( $\hat{x}$ ) [=]

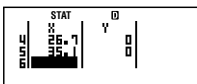


# #076 $y = Ae^{Bx}$

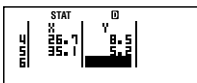
$x$	$y$
6.9	21.4
12.9	15.7
19.8	12.1
26.7	8.5
35.1	5.2

[SHIFT] [MODE] [▼] [4] (STAT) [2] (OFF)  
 [MODE] [3] (STAT) [5] ( $e^X$ )

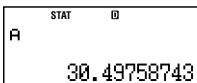
[6] [.] [9] [=] [1] [2] [.] [9] [=]  
 [1] [9] [.] [8] [=]  
 [2] [6] [.] [7] [=]  
 [3] [5] [.] [1] [=]



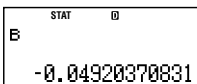
[▼] [▶] [2] [1] [.] [4] [=]  
 [1] [5] [.] [7] [=]  
 [1] [2] [.] [1] [=] [8] [.] [5] [=]  
 [5] [.] [2] [=]



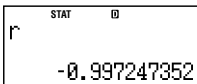
[AC] [SHIFT] [1] (STAT) [7] (Reg)  
 [1] (A) [=]



[SHIFT] [1] (STAT) [7] (Reg)  
 [2] (B) [=]

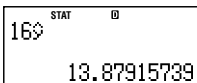


[SHIFT] [1] (STAT) [7] (Reg)  
 [3] (r) [=]



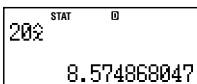
$x = 16 \rightarrow \hat{y} = ?$

[1] [6] [SHIFT] [1] (STAT) [7] (Reg)  
 [5] ( $\hat{y}$ ) [=]



$y = 20 \rightarrow \hat{x} = ?$

[2] [0] [SHIFT] [1] (STAT) [7] (Reg)  
 [4] ( $\hat{x}$ ) [=]

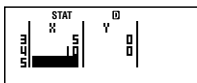


# #077 $y = AB^x$

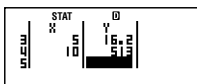
$x$	$y$
-1	0.24
3	4
5	16.2
10	513

SHIFT MODE  $\blacktriangledown$  4 (STAT) 2 (OFF)  
MODE 3 (STAT) 6 (A•B^X)

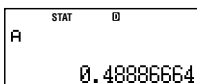
(-/-) 1 = 3 = 5 =  
1 0 =



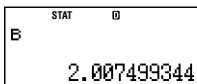
$\blacktriangledown$   $\blacktriangleright$  0 . 2 4 = 4 =  
1 6 . 2 = 5 1 3 =



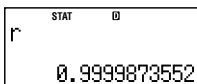
AC SHIFT 1 (STAT) 7 (Reg)  
1 (A) =



SHIFT 1 (STAT) 7 (Reg)  
2 (B) =

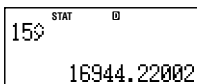


SHIFT 1 (STAT) 7 (Reg)  
3 (r) =



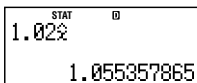
$x = 15 \rightarrow \hat{y} = ?$

1 5 SHIFT 1 (STAT) 7 (Reg)  
5 ( $\hat{y}$ ) =



$y = 1.02 \rightarrow \hat{x} = ?$

1 . 0 2 SHIFT 1 (STAT)  
7 (Reg) 4 ( $\hat{x}$ ) =

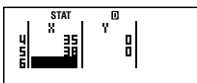


# #078 $y = Ax^B$

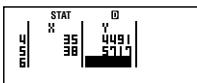
$x$	$y$
28	2410
30	3033
33	3895
35	4491
38	5717

SHIFT MODE  $\blacktriangledown$  4 (STAT) 2 (OFF)  
MODE 3 (STAT) 7 (A•X^B)

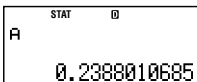
2 8 = 3 0 = 3 3 =  
3 5 = 3 8 =



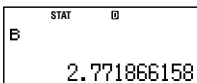
$\blacktriangledown$   $\blacktriangleright$  2 4 1 0 =  
3 0 3 3 =  
3 8 9 5 =  
4 4 9 1 =  
5 7 1 7 =



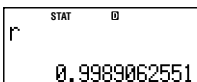
AC SHIFT 1 (STAT) 7 (Reg) A  
1 (A) =



SHIFT 1 (STAT) 7 (Reg) B  
2 (B) =

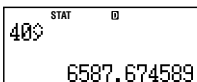


SHIFT 1 (STAT) 7 (Reg) r  
3 (r) =



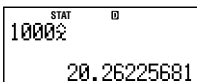
$x = 40 \rightarrow \hat{y} = ?$

4 0 SHIFT 1 (STAT) 7 (Reg)  
5 ( $\hat{y}$ ) =



$y = 1000 \rightarrow \hat{x} = ?$

1 0 0 0 SHIFT 1 (STAT)  
7 (Reg) 4 ( $\hat{x}$ ) =





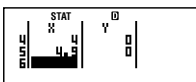
#079

$$y = A + \frac{B}{x}$$

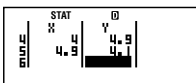
$x$	$y$
1.1	18.3
2.1	9.7
2.9	6.8
4.0	4.9
4.9	4.1

SHIFT MODE  $\blacktriangledown$  4 (STAT) 2 (OFF)  
MODE 3 (STAT) 8 (1/X)

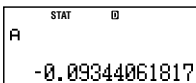
1  $\cdot$  1 = 2  $\cdot$  1 =  
2  $\cdot$  9 = 4 =  
4  $\cdot$  9 =



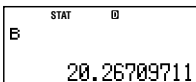
$\blacktriangledown$   $\blacktriangleright$  1 8  $\cdot$  3 =  
9  $\cdot$  7 = 6  $\cdot$  8 =  
4  $\cdot$  9 = 4  $\cdot$  1 =



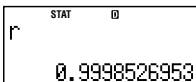
AC SHIFT 1 (STAT) 7 (Reg) A  
1 (A) =



SHIFT 1 (STAT) 7 (Reg) B  
2 (B) =

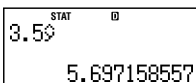


SHIFT 1 (STAT) 7 (Reg) r  
3 (r) =



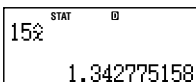
$$x = 3.5 \rightarrow \hat{y} = ?$$

3  $\cdot$  5 SHIFT 1 (STAT)  
7 (Reg) 5 ( $\hat{y}$ ) =



$$y = 15 \rightarrow \hat{x} = ?$$

1 5 SHIFT 1 (STAT) 7 (Reg)  
4 ( $\hat{x}$ ) =



# #080

AC BIN 1 + 1 =

1+1  
Bin  
0000000000000010

# #081

AC OCT 7 + 1 =

7+1  
Oct  
000000000010

# #082

AC HEX 1 F + 1 =

1F+1  
Hex  
00000020

# #083

AC DEC 3 0 =

30  
Dec  
30

BIN

30  
Bin  
0000000000011110

OCT

30  
Oct  
00000000036

HEX

30  
Hex  
0000001E

**#084**

AC BIN SHIFT 3 (BASE) ▼ 1 (d)  
 5 + SHIFT 3 (BASE) ▼ 2 (h)  
 5 =

d5+h5

 Bin  
 00000000000001010
**#085**  $1010_2$  and  $1100_2 = 1000_2$ 

1 0 1 0 SHIFT 3 (BASE)  
 1 (and) 1 1 0 0 =

1010and1100

 Bin  
 00000000000001000
**#086**  $1011_2$  or  $11010_2 = 11011_2$ 

1 0 1 1 SHIFT 3 (BASE)  
 2 (or) 1 1 0 1 0 =

1011or11010

 Bin  
 00000000000011011
**#087**  $1010_2$  xor  $1100_2 = 110_2$ 

1 0 1 0 SHIFT 3 (BASE)  
 3 (xor) 1 1 0 0 =

1010xor1100

 Bin  
 0000000000000110
**#088**  $1111_2$  xnor  $101_2 = 111111111110101_2$ 

1 1 1 1 SHIFT 3 (BASE)  
 4 (xnor) 1 0 1 =

1111xnor101

 Bin  
 111111111110101
**#089** Not ( $1010_2$ ) =  $111111111110101_2$ 

SHIFT 3 (BASE)  
 5 (Not) 1 0 1 0 =

Not(1010)

 Bin  
 111111111110101

**#090** Neg (101101<sub>2</sub>) = 111111111010011<sub>2</sub>

SHIFT 3 (BASE) 6 (Neg)  
1 0 1 1 0 1 > =

Neg(101101)  
Bin  
111111111010011

**#091** MATH  $\begin{cases} X + 2Y = 3 \\ 2X + 3Y = 4 \end{cases}$

MODE 5 (EQN)

1: a<sub>n</sub>X+b<sub>n</sub>Y=c<sub>n</sub>  
2: a<sub>n</sub>X+b<sub>n</sub>Y+c<sub>n</sub>Z=d<sub>n</sub>  
3: aX<sup>2</sup>+bX+c=0  
4: aX<sup>3</sup>+bX<sup>2</sup>+cX+d=0

1 (a<sub>n</sub>X+b<sub>n</sub>Y=c<sub>n</sub>)

1 2 [ a b c ]  
0 0 0  
0

1 = 2 = 3 =  
2 = 3 = 4 =

1 2 [ a 1 b 2 c 3 ]  
4

=

X=  
-1

▼

Y=  
2

**#092** MATH  $X^2 + 2X + 3 = 0$

MODE 5 (EQN)

1: a<sub>n</sub>X+b<sub>n</sub>Y=c<sub>n</sub>  
2: a<sub>n</sub>X+b<sub>n</sub>Y+c<sub>n</sub>Z=d<sub>n</sub>  
3: aX<sup>2</sup>+bX+c=0  
4: aX<sup>3</sup>+bX<sup>2</sup>+cX+d=0

3 (aX<sup>2</sup>+bX+c=0)

1 2 [ a b c ]  
0 0 0  
0

1 = 2 = 3 =

$$\begin{bmatrix} a & b & c \\ 1 & 2 & 3 \end{bmatrix}$$

=

$$X_1 = -1 + 1.414213562i$$

=

$$X_2 = -1 - 1.414213562i$$

#093

MATH

$$\begin{cases} X - Y + Z = 2 \\ X + Y - Z = 0 \\ -X + Y + Z = 4 \end{cases}$$

MODE 5 (EQN)

$$\begin{aligned} 1: & a_n X + b_n Y = c_n \\ 2: & a_n X + b_n Y + c_n Z = d_n \\ 3: & aX^2 + bX + c = 0 \\ 4: & aX^3 + bX^2 + cX + d = 0 \end{aligned}$$

2 (anX+bnY+cnZ=dn)

$$\begin{bmatrix} a & b & c & d \\ 1 & 2 & 3 & 4 \\ 2 & 3 & 4 & 5 \\ 3 & 4 & 5 & 6 \end{bmatrix}$$

1 = (-) 1 = 1 = 2 =  
1 = 1 = (-) 1 = 0 =  
(-) 1 = 1 = 1 = 4 =

$$\begin{bmatrix} b & c & d \\ 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{bmatrix}$$

=

$$X = 1$$

▼

$$Y = 2$$

$\nabla$ 
0 Math  $\blacktriangle$   
 $Z =$   
3

**#094** **MATH**  $X^3 - 2X^2 - X + 2 = 0$

**MODE** **5** (EQN)  
 1:  $aX + bY = c$   
 2:  $aX + bY + cZ = d$   
 3:  $aX^2 + bX + c = 0$   
 4:  $aX^3 + bX^2 + cX + d = 0$

**4** ( $aX^3 + bX^2 + cX + d = 0$ )  
0 Math  $\blacktriangle$   
0

$\frac{1}{1} = \frac{(-)}{2} =$   
 $\frac{(-)}{1} = \frac{2}{2} =$   
0 Math  $\blacktriangle$   
2

$\frac{1}{1} =$   
0 Math  $\blacktriangledown$   
-1

$\nabla$   $X_2 =$   
0 Math  $\blacktriangledown \blacktriangle$   
2

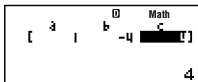
$\nabla$   $X_3 =$   
0 Math  $\blacktriangle$   
1

# #095 MATH $X^2 - 4X + 4 = 0$

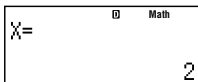
MODE 5 (EQN) 3 (aX<sup>2</sup>+bX+c=0)



1 = (-) 4 = 4 =

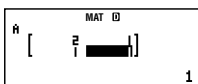


=

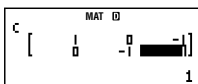


# #096

MODE 6 (MATRIX)  
1 (MatA) 5 (2×2)  
2 = 1 = 1 = 1 =



SHIFT 4 (MATRIX) 1 (Dim)  
3 (MatC) 4 (2×3)  
1 = 0 = (-) 1 =  
0 = (-) 1 = 1 =

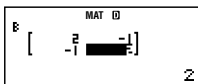


# #097

SHIFT 4 (MATRIX) 2 (Data)  
1 (MatA) SHIFT RCL (STO)



(-) 1 = (-) 1 = 2 =



# #098

$\boxed{\text{AC}}$   $\boxed{\text{SHIFT}}$   $\boxed{4}$  (MATRIX)  $\boxed{3}$  (MatA)  
 $\boxed{+}$   $\boxed{\text{SHIFT}}$   $\boxed{4}$  (MATRIX)  $\boxed{4}$  (MatB)

MAT 0  
 MatA+MatB  
 0

$\boxed{=}$   
 Ans MAT 0  
 $\begin{bmatrix} 1 & 0 \\ 0 & 3 \end{bmatrix}$   
 4

# #099

$\boxed{\text{SHIFT}}$   $\boxed{4}$  (MATRIX)  $\boxed{3}$  (MatA)  $\boxed{\times}$   
 $\boxed{\text{SHIFT}}$   $\boxed{4}$  (MATRIX)  $\boxed{4}$  (MatB)

MAT 0  
 MatA×MatB  
 0

$\boxed{=}$   
 Ans MAT 0  
 $\begin{bmatrix} 1 & 0 \\ 1 & 1 \end{bmatrix}$   
 3

$\boxed{\text{SHIFT}}$   $\boxed{4}$  (MATRIX)  $\boxed{4}$  (MatB)  $\boxed{\times}$   
 $\boxed{\text{SHIFT}}$   $\boxed{4}$  (MATRIX)  $\boxed{3}$  (MatA)  $\boxed{=}$   
 $\boxed{\text{SHIFT}}$   $\boxed{4}$  (MATRIX)  $\boxed{6}$  (MatAns)

MAT 0  
 MatA-MatAns  
 0

$\boxed{=}$   
 Ans MAT 0  
 $\begin{bmatrix} 1 & 0 \\ -1 & 0 \end{bmatrix}$   
 0

# #100

$\boxed{3}$   $\boxed{\times}$   $\boxed{\text{SHIFT}}$   $\boxed{4}$  (MATRIX)  
 $\boxed{3}$  (MatA)

MAT 0  
 3×MatA  
 0

$\boxed{=}$   
 Ans MAT 0  
 $\begin{bmatrix} 3 & 3 \\ 3 & 3 \end{bmatrix}$   
 6



**#101**

$$\det \begin{bmatrix} a_{11} \end{bmatrix} = a_{11}$$

$$\det \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix} = a_{11}a_{22} - a_{12}a_{21}$$

$$\det \begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix}$$

$$= a_{11}a_{22}a_{33} + a_{12}a_{23}a_{31} + a_{13}a_{21}a_{32} - a_{13}a_{22}a_{31} \\ - a_{12}a_{21}a_{33} - a_{11}a_{23}a_{32}$$

**SHIFT** **4** (MATRIX) **7** (det) **SHIFT**  
**4** (MATRIX) **3** (MatA) **▷** **=**

MAT **0**  
 det(MatA)  
 1

**#102**

**SHIFT** **4** (MATRIX) **8** (Trn)  
**SHIFT** **4** (MATRIX) **5** (MatC) **▷** **=**

MAT **0**  
 Trn(MatC)  
**0**

**=** Ans MAT **0**  
 $\begin{bmatrix} \blacksquare & 0 \\ -1 & 1 \end{bmatrix}$   
 1

# #103

$$[a_{11}]^{-1} = \left[ \frac{1}{a_{11}} \right]$$

$$\begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}^{-1} = \frac{\begin{bmatrix} a_{22} & -a_{12} \\ -a_{21} & a_{11} \end{bmatrix}}{a_{11}a_{22} - a_{12}a_{21}}$$

$$\begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix}^{-1} = \frac{\begin{bmatrix} a_{22}a_{33} - a_{23}a_{32} & -a_{12}a_{33} + a_{13}a_{32} & a_{12}a_{23} - a_{13}a_{22} \\ -a_{21}a_{33} + a_{23}a_{31} & a_{11}a_{33} - a_{13}a_{31} & -a_{11}a_{23} + a_{13}a_{21} \\ a_{21}a_{32} - a_{22}a_{31} & -a_{11}a_{32} + a_{12}a_{31} & a_{11}a_{22} - a_{12}a_{21} \end{bmatrix}}{\det \begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix}}$$

**SHIFT** **4** (MATRIX) **3** (MatA) **x<sup>-1</sup>**

$$\text{MatA}^{-1} \quad \text{MAT } \text{D} \quad 0$$

**=**

$$\text{Ans} \quad \text{MAT } \text{D} \quad \begin{bmatrix} -1 & -1 \\ -1 & 2 \end{bmatrix} \quad 1$$

# #104

SHIFT hyp (Abs) SHIFT 4 (MATRIX) 4 (MatB) )

MAT 0  
Abs(MatB)  
0

=

MAT 0  
Ans [ E 1 ]  
2

# #105

SHIFT 4 (MATRIX) 3 (MatA) x<sup>2</sup>

MAT 0  
MatA<sup>2</sup>  
0

=

MAT 0  
Ans [ E 3 ]  
5

SHIFT 4 (MATRIX) 3 (MatA) SHIFT x<sup>2</sup> (x<sup>3</sup>)

MAT 0  
MatA<sup>3</sup>  
0

=

MAT 0  
Ans [ E 8 ]  
13

# #106

MODE 8 (VECTOR) 1 (VctA) 2 (2) 1 = 2 =

VCT 0  
A [ 1 E ]  
2

AC SHIFT 5 (VECTOR) 1 (Dim) 3 (VctC) 1 (3) 2 = (-) 1 = 2 =

VCT 0  
C [ 2 -1 E ]  
2

## #107

**AC** **SHIFT** **5** (VECTOR) **2** (Data)  
**1** (VctA) **SHIFT** **RCL** (STO)

STO VCT0  
 [ ] 2]  
 1

**0.999** (VctB) **3** **=** **4** **=**

VCT0  
 [ ] 3 [ ]]  
 4

## #108

**AC** **SHIFT** **5** (VECTOR) **3** (VctA)  
**+** **SHIFT** **5** (VECTOR) **4** (VctB)

VCT0  
 VctA+VctB  
 0

**=**

Ans VCT0  
 [ ] 6]  
 4

## #109

**3** **X** **SHIFT** **5** (VECTOR)  
**3** (VctA)

VCT0  
 3×VctA  
 0

**=**

Ans VCT0  
 [ ] 6]  
 3

**SHIFT** **5** (VECTOR) **4** (VctB) **-**  
**SHIFT** **5** (VECTOR) **6** (VctAns)

VCT0  
 VctB-VctAns  
 0

**=**

Ans VCT0  
 [ ] -2]  
 0

**#110**

$$(a_1, a_2) \cdot (b_1, b_2) = a_1b_1 + a_2b_2$$

$$(a_1, a_2, a_3) \cdot (b_1, b_2, b_3) = a_1b_1 + a_2b_2 + a_3b_3$$

SHIFT	5	(VECTOR)	3	(VctA)	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <math display="block">\text{VctA} \cdot \text{VctB}</math> </div>
SHIFT	5	(VECTOR)	7	(Dot)	
SHIFT	5	(VECTOR)	4	(VctB)	

**#111**

$$(a_1, a_2) \times (b_1, b_2) = (0, 0, a_1b_2 - a_2b_1)$$

$$(a_1, a_2, a_3) \times (b_1, b_2, b_3)$$

$$= (a_2b_3 - a_3b_2, a_3b_1 - a_1b_3, a_1b_2 - a_2b_1)$$

SHIFT	5	(VECTOR)	3	(VctA)	×	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <math display="block">\text{VctA} \times \text{VctB}</math> </div>
SHIFT	5	(VECTOR)	4	(VctB)	0	

=	Ans	<div style="border: 1px solid black; padding: 2px; display: inline-block;"> <math display="block">\begin{bmatrix} 0 &amp; 0 &amp; -2 \end{bmatrix}</math> </div>	
		0	

**#112**

$$\text{Abs}(a_1, a_2) = \sqrt{a_1^2 + a_2^2}$$

$$\text{Abs}(a_1, a_2, a_3) = \sqrt{a_1^2 + a_2^2 + a_3^2}$$

SHIFT	hyp	(Abs)	SHIFT	5	(VECTOR)	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <math display="block">\text{Abs}(\text{VctC})</math> </div>
			5	(VctC)	)	

## #113

Deg

(SHIFT) (5) (VECTOR) (1) (Dim)  
 (1) (VctA) (1) (3)  
 (-) (1) (=) (0) (=) (1) (=)

VCT0  
 A [ -1 0 ]  
 1

(AC) (SHIFT) (5) (VECTOR) (1) (Dim)  
 (2) (VctB) (1) (3)  
 (1) (=) (2) (=) (0) (=)

VCT0  
 B [ 1 2 ]  
 0

VctA • VctB

(AC) (SHIFT) (5) (VECTOR) (3) (VctA)  
 (SHIFT) (5) (VECTOR) (7) (Dot)  
 (SHIFT) (5) (VECTOR) (4) (VctB) (=)

VCT0  
 VctA • VctB  
 -1

Ans ÷ (Abs(VctA) × Abs(VctB))

(÷) ( ( ) (SHIFT) (hyp) (Abs) (SHIFT)  
 (5) (VECTOR) (3) (VctA) ( ) (X)  
 (SHIFT) (hyp) (Abs) (SHIFT) (5) (VECTOR)  
 (4) (VctB) ( ) ( ) (=)

VCT0  
 Ans ÷ (Abs(VctA) ×  
 -0.316227766

 $\cos^{-1}$  Ans

\*1 (SHIFT) (COS) ( $\cos^{-1}$ ) (Ans) ( ) (=)

VCT0  
 $\cos^{-1}$ (Ans)  
 108.4349488

VctA × VctB

(SHIFT) (5) (VECTOR) (3) (VctA) (X)  
 (SHIFT) (5) (VECTOR) (4) (VctB) (=)

VCT0  
 Ans [ -1 -2 ]  
 -2

Abs(VctAns)

(SHIFT) (hyp) (Abs) (SHIFT) (5) (VECTOR)  
 (6) (VctAns) ( ) (=)

VCT0  
 Abs(VctAns)  
 3

VctAns ÷ Ans

\*2 (SHIFT) (5) (VECTOR)  
 (6) (VctAns) (÷) (Ans) (=)

VCT0  
 Ans [ 0.3333 -0.6666 ]  
 -0.6666666667

**#114**

01	mp	$1.67262158 \times 10^{-27}$ kg
02	mn	$1.67492716 \times 10^{-27}$ kg
03	me	$9.10938188 \times 10^{-31}$ kg
04	$m\mu$	$1.88353109 \times 10^{-28}$ kg
05	$a_0$	$0.5291772083 \times 10^{-10}$ m
06	h	$6.62606876 \times 10^{-34}$ Js
07	$\mu\text{N}$	$5.05078317 \times 10^{-27}$ JT <sup>-1</sup>
08	$\mu\text{B}$	$927.400899 \times 10^{-26}$ JT <sup>-1</sup>
09	$\hbar$	$1.054571596 \times 10^{-34}$ Js
10	$\alpha$	$7.297352533 \times 10^{-3}$
11	re	$2.817940285 \times 10^{-15}$ m
12	$\lambda_c$	$2.426310215 \times 10^{-12}$ m
13	$\gamma_p$	$2.67522212 \times 10^8$ s <sup>-1</sup> T <sup>-1</sup>
14	$\lambda_{cp}$	$1.321409847 \times 10^{-15}$ m
15	$\lambda_{cn}$	$1.319590898 \times 10^{-15}$ m
16	$R_\infty$	$10973731.568549$ m <sup>-1</sup>
17	u	$1.66053873 \times 10^{-27}$ kg
18	$\mu p$	$1.410606633 \times 10^{-26}$ JT <sup>-1</sup>
19	$\mu e$	$-928.476362 \times 10^{-26}$ JT <sup>-1</sup>
20	$\mu n$	$-0.96623640 \times 10^{-26}$ JT <sup>-1</sup>
21	$\mu\mu$	$-4.49044813 \times 10^{-26}$ JT <sup>-1</sup>
22	F	96485.3415 Cmol <sup>-1</sup>
23	e	$1.602176462 \times 10^{-19}$ C
24	NA	$6.02214199 \times 10^{23}$ mol <sup>-1</sup>
25	k	$1.3806503 \times 10^{-23}$ JK <sup>-1</sup>
26	$V_m$	$22.413996 \times 10^{-3}$ m <sup>3</sup> mol <sup>-1</sup>
27	R	$8.314472$ Jmol <sup>-1</sup> K <sup>-1</sup>
28	$C_0$	299792458 ms <sup>-1</sup>
29	$C_1$	$3.74177107 \times 10^{-16}$ Wm <sup>2</sup>
30	$C_2$	$1.4387752 \times 10^{-2}$ mK
31	$\sigma$	$5.670400 \times 10^{-8}$ Wm <sup>-2</sup> K <sup>-4</sup>
32	$\epsilon_0$	$8.854187817 \times 10^{-12}$ Fm <sup>-1</sup>
33	$\mu_0$	$12.566370614 \times 10^{-7}$ NA <sup>-2</sup>
34	$\phi_0$	$2.067833636 \times 10^{-15}$ Wb

35	g	9.80665 ms <sup>-2</sup>
36	G <sub>0</sub>	7.748091696 × 10 <sup>-5</sup> S
37	Z <sub>0</sub>	376.730313461 Ω
38	t	273.15 K
39	G	6.673 × 10 <sup>-11</sup> m <sup>3</sup> kg <sup>-1</sup> s <sup>-2</sup>
40	atm	101325 Pa

# #115 MATH

SHIFT 7 (CONST)

CONSTANT  
Number 01~40?

[\_\_]

2 8 (C<sub>0</sub>) =

0 Math ▲

C<sub>0</sub>

299792458

# #116 MATH c<sub>0</sub> = 1/√ε<sub>0</sub>μ<sub>0</sub>

1 ÷ √

1 ÷ √

0 Math

SHIFT 7 (CONST)

3 2 (ε<sub>0</sub>)

1 ÷ √ε<sub>0</sub>

0 Math

SHIFT 7 (CONST)

3 3 (μ<sub>0</sub>)

1 ÷ √ε<sub>0</sub>μ<sub>0</sub>

0 Math

=

1 ÷ √ε<sub>0</sub>μ<sub>0</sub>

0 Math ▲

299792458



**#117**

01	in ► cm	1 [inch] = 2.54 [cm]
02	cm ► in	1 [cm] = (1/2.54) [inch]
03	ft ► m	1 [ft] = 0.3048 [m]
04	m ► ft	1 [m] = (1/0.3048) [ft]
05	yd ► m	1 [yd] = 0.9144 [m]
06	m ► yd	1 [m] = (1/0.9144) [yd]
07	mile ► km	1 [mile] = 1.609344 [km]
08	km ► mile	1 [km] = (1/1.609344) [mile]
09	n mile ► m	1 [n mile] = 1852 [m]
10	m ► n mile	1 [m] = (1/1852) [n mile]
11	acre ► m <sup>2</sup>	1 [acre] = 4046.856 [m <sup>2</sup> ]
12	m <sup>2</sup> ► acre	1 [m <sup>2</sup> ] = (1/4046.856) [acre]
13	gal (US) ► ℓ	1 [gal (US)] = 3.785412 [ℓ]
14	ℓ ► gal (US)	1 [ℓ] = (1/3.785412) [gal (US)]
15	gal (UK) ► ℓ	1 [gal (UK)] = 4.54609 [ℓ]
16	ℓ ► gal (UK)	1 [ℓ] = (1/4.54609) [gal (UK)]
17	pc ► km	1 [pc] = $3.085678 \times 10^{13}$ [km]
18	km ► pc	1 [km] = (1/( $3.085678 \times 10^{13}$ )) [pc]
19	km/h ► m/s	1 [km/h] = (5/18) [m/s]
20	m/s ► km/h	1 [m/s] = (18/5) [km/h]
21	oz ► g	1 [oz] = 28.34952 [g]
22	g ► oz	1 [g] = (1/28.34952) [oz]
23	lb ► kg	1 [lb] = 0.4535924 [kg]
24	kg ► lb	1 [kg] = (1/0.4535924) [lb]
25	atm ► Pa	1 [atm] = 101325 [Pa]
26	Pa ► atm	1 [Pa] = (1/101325) [atm]
27	mmHg ► Pa	1 [mmHg] = 133.3224 [Pa]
28	Pa ► mmHg	1 [Pa] = (1/133.3224) [mmHg]
29	hp ► kW	1 [hp] = 0.7457 [kW]
30	kW ► hp	1 [kW] = (1/0.7457) [hp]
31	kgf/cm <sup>2</sup> ► Pa	1 [kgf/cm <sup>2</sup> ] = 98066.5 [Pa]
32	Pa ► kgf/cm <sup>2</sup>	1 [Pa] = (1/98066.5) [kgf/cm <sup>2</sup> ]
33	kgf · m ► J	1 [kgf · m] = 9.80665 [J]
34	J ► kgf · m	1 [J] = (1/9.80665) [kgf · m]

35	lbf/in <sup>2</sup> ► kPa	1 [lbf/in <sup>2</sup> ] = 6.894757 [kPa]
36	kPa ► lbf/in <sup>2</sup>	1 [kPa] = (1/6.894757) [lbf/in <sup>2</sup> ]
37	°F ► °C	t [°F] = (t - 32)/1.8 [°C]
38	°C ► °F	t [°C] = (1.8 × t + 32) [°F]
39	J ► cal	1 [J] = (1/4.1858) [cal] *
40	cal ► J	1 [cal] = 4.1858 [J]

**#118** **LINE** 5cm = ? in

**5**

5| 0 0

**SHIFT** **8** (CONV)

CONVERSION  
Number 01~40?  
[ ]

**0** **2** (cm►in)

5cm►in 0 0

**=**

5cm►in ▲  
1.968503937

**#119** **LINE** 100g = ? oz

**1** **0** **0**

100|  
0

**SHIFT** **8** (CONV)

CONVERSION  
Number 01~40?  
[ \_ \_ ]

**2** **2** (g▶oz)

100g▶oz|  
0

**=**

100g▶oz  
3.527396584

**#120** **LINE** -31°C = ? °F

**(-)** **3** **1**

-31|  
0

**SHIFT** **8** (CONV)

CONVERSION  
Number 01~40?  
[ \_ \_ ]

**3** **8** (°C▶°F)

-31°C▶°F|  
0

**=**

-31°C▶°F  
-23.8

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