Introduction

The EL-9400 was developed to meet the needs of an expanding education market and is based on three concepts: easy to teach, easy to learn and easy to use. The EL-9400 has been designed with simplified operations and time-saving features, allowing teachers to concentrate on actual teaching.

This manual was designed to introduce teachers to the unique features of the EL-9400 using detailed operation examples.
Sales points

1. Large 96 x 64-dot display

2. Graph Shift/Change shows how "changing" the graph affects the equation

3. Slide Shows reduce class preparation time

4. Equation Editor shows equations just as in textbooks

5. Rapid graph/Rapid window simplify graphing procedures

6. Rapid zoom allows easy adjustment of window size
Basic operation

Power ON/OFF

ON  · · · · · · Power on
2ndF OFF · · · Power off
CL  · · · · · · Erase equations and remove error displays
2ndF CL  · · · Cancel of previous function (Escape)

Function keys

Y=  Use to enter equations
GRAPH  Use to draw graphs
TABLE  Use to view table of function value
WINDOW  Use to set size of viewing window
ZOOM  Use to adjust the viewing range
TRACE  Use to trace graphs
SLIDE SHOW  Use to enter slide show mode
EZ  Use to operate Rapid Graph/Rapid Window and Rapid Zoom functions

Names of parts

1. Graphing keys
2. Power supply ON/OFF key
3. Alphabet specification key
4. Secondary function specification key
5. Display screen
6. Cursor movement keys
7. Clear/Quit key
8. Variable enter key
9. Calculation execute key
10. Communication port for peripheral devices
**Basic operation**

**Guide to key use**

Press \( \text{2ndF} \) to use secondary functions (in yellow).

Press \( \text{ALPHA} \) to use the alphabet keys (in blue).

Example: \( \sin^{-1} \theta \)

To select “sin”: \( \sin \)

To select “sin^{-1}”: \( \text{2ndF} \ \sin \)

To select \( \theta \): \( \text{ALPHA} \ \sin \)

**SET UP menu**

Press \( \text{2ndF} \ \text{SET UP} \ A \).

- Contents displayed on the right side of the screen are the current settings.

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**Adjusting screen contrast**

- The contrast adjust screen will appear when pressing \( \text{2ndF} \ \text{OPTION} \).

Press \( - \) to lighten contrast.

Press \( + \) to darken contrast.

---

**Reset function**

1) When trouble occurs

Press \( \text{2ndF} \ \text{OPTION} \ E \) to enter the reset mode.

- Use this function (1 or 2) to return all settings to the default value or to delete all data.

2) All RESET operation

- If trouble still occurs, proceed as follows:
  1. Press the RESET switch on the back.
  2. Press \( \text{ON} \).
    - Returns to the initial display.

**CAUTION**

Do not press \( \text{CL} \) in step 2. It will delete all data stored in the calculator.
Equation editor

The equation editor allows equations to be viewed just as they are written in textbooks. This increases student comprehension and allows mistakes to be found quickly.

Example

Input the equation and see how it can be easily viewed with the equation editor.

\[ \int_{0}^{\frac{1}{2}} \frac{x}{\sqrt{1-x^2}} \, dx \]

<table>
<thead>
<tr>
<th>Key Operation</th>
<th>Display</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><img src="image1.png" alt="Display" /></td>
<td>Clear the display.</td>
</tr>
<tr>
<td>2</td>
<td><img src="image2.png" alt="Display" /></td>
<td>Select CALC and ( \int ) (Integral function)</td>
</tr>
<tr>
<td>3</td>
<td><img src="image3.png" alt="Display" /></td>
<td>Enter the range of the integral.</td>
</tr>
<tr>
<td>4</td>
<td><img src="image4.png" alt="Display" /></td>
<td>Enter ( \frac{x}{\sqrt{1-x^2}} )</td>
</tr>
<tr>
<td>5</td>
<td><img src="image5.png" alt="Display" /></td>
<td>Complete equation input.</td>
</tr>
<tr>
<td>6</td>
<td><img src="image6.png" alt="Display" /></td>
<td>Calculate the expression. The blinking mark in the upper right side of the display indicates the expression is being calculated.</td>
</tr>
</tbody>
</table>
Graph shift function helps students grasp the relationship between an equation and its graph. Shift the graph’s location without changing its shape, and the change is immediately reflected in the equation on the right side of the display.

**Example**

When the graph of $y = x^2$ is shifted downward, how does this affect the equation?

<table>
<thead>
<tr>
<th>Key Operation</th>
<th>Display</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2ndF SHIFT/CHANGE</td>
<td>![Display Image]</td>
<td>Enter <strong>SHIFT/CHANGE</strong> mode. If <strong>SHIFT</strong> is not already highlighted press ▲.</td>
</tr>
<tr>
<td>2 ENTER</td>
<td>![Display Image]</td>
<td>Select shift. Cursor moves to the equation menu.</td>
</tr>
<tr>
<td>3 ENTER</td>
<td>![Display Image]</td>
<td>Select the equation: $y = x^2$ and draw the graph.</td>
</tr>
<tr>
<td>4 ▼ ▼</td>
<td>![Display Image]</td>
<td>Select the location of the shift: move cursor down twice.</td>
</tr>
<tr>
<td>5 ENTER</td>
<td>![Display Image]</td>
<td>View the result of the shift. $\begin{bmatrix} y = x^2 \ y = x^2 - 2 \end{bmatrix}$</td>
</tr>
</tbody>
</table>
Graph change function helps students grasp the relationship between an equation and its graph. Change the shape of the graph, and the change is immediately reflected in the equation on the right side of the display.

### Example

**When the graph of \( y = x^2 \) is changed, how does it affect the equation?**

<table>
<thead>
<tr>
<th>Key Operation</th>
<th>Display</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2nd F SHIFT/CHANGE ▼</td>
<td><img src="image1.png" alt="Display" /></td>
<td>Enter <code>SHIFT/CHANGE</code> mode and specified (CHANGE).</td>
</tr>
<tr>
<td>2 ENTER</td>
<td><img src="image2.png" alt="Display" /></td>
<td>Select change. Cursor will move to the equation menu.</td>
</tr>
<tr>
<td>3 ENTER</td>
<td><img src="image3.png" alt="Display" /></td>
<td>Select the equation: ( y = x^2 ) and draw the graph.</td>
</tr>
<tr>
<td>4 ▲</td>
<td><img src="image4.png" alt="Display" /></td>
<td>Select the location of the change: increase the value of y-coordinates.</td>
</tr>
</tbody>
</table>
| 5 ENTER | ![Display](image5.png) | View the result of the change. \[
  \begin{align*}
  y &= x^2 \\
  y &= 2x^2
  \end{align*}
  \] |
Slide show assists with teacher preparation. By selecting from the built-in options or creating your own series of slides, you can demonstrate lessons with minimum preparation time.

**Example**

Use the built-in slide show of $y = x^2$ to show how the coordinates change as you move along the graph.

<table>
<thead>
<tr>
<th>Key Operation</th>
<th>Display</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> SLIDE SHOW</td>
<td><img src="slide1.png" alt="Display" /></td>
<td>Specified SLIDE SHOW mode.</td>
</tr>
<tr>
<td><strong>2</strong> ENTER</td>
<td><img src="slide2.png" alt="Display" /></td>
<td>Select the built-in menu.</td>
</tr>
<tr>
<td><strong>3</strong> ENTER</td>
<td><img src="slide3.png" alt="Display" /></td>
<td>Select $y = x^2$ and the first slide appears.</td>
</tr>
<tr>
<td><strong>4</strong> ▼</td>
<td><img src="slide4.png" alt="Display" /></td>
<td>Begin the slide show by pressing the ▼ cursor key.</td>
</tr>
</tbody>
</table>

Moving between the values you can follow the changes in the graph’s coordinates, making the nature of the graph easier to understand.

* View the selection of built-in slide shows on the following pages.
Built-in slide show selections

1) \( Y = X^2 \)

2) \( Y = AX + B \)

3) \( Y = \sqrt{X} \)

4) \( Y = \frac{1}{X} \)
Built-in slide show selections

5) $Y = \sin X$

6) $Y = \tan X$

7) $Y = \cos^{-1} X$

8) $Y = \ln X$

Features

Built-in slide show selections
The EL-9400 has three unique functions that simplify graphing procedures: Rapid Graph, Rapid Window and Rapid Zoom. Of course, the EL-9400 supports conventional graphing procedures as well.

### Graphing Procedure

Following outlines graphing procedures and indicates the steps where Sharp's unique functions can be used to simplify operations. These functions are introduced on the following pages.

<table>
<thead>
<tr>
<th><strong>Step 1</strong></th>
<th>Manual Input</th>
<th><strong>Rapid Graph</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input equation</strong></td>
<td>[ Y = \frac{x^3}{x + \frac{1}{2}} ]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Step 2</strong></th>
<th>Manual Input</th>
<th><strong>Rapid Window</strong></th>
</tr>
</thead>
</table>
| **Set X, Y range** | \[ \text{Xmin} = (-3) \quad \text{Xmax} = -1 \quad \text{Xscl} = 5 \]
| | \[ \text{Ymin} = -1 \quad \text{Ymax} = 3 \quad \text{Yscl} = 2 \] | | |

<table>
<thead>
<tr>
<th><strong>Step 3</strong></th>
<th><strong>Graph</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Draw graph</strong></td>
<td></td>
</tr>
</tbody>
</table>

Press Graph button to draw graph.

<table>
<thead>
<tr>
<th><strong>Step 4</strong></th>
<th>Manual Input</th>
<th><strong>Rapid Zoom</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adjust viewing window</strong></td>
<td>[ \text{Window (Graph)} \quad \text{Xmin} = -3 \quad \text{Xmax} = -1 \quad \text{Xscl} = 5 \quad \text{Ymin} = -1 \quad \text{Ymax} = 3 \quad \text{Yscl} = 2 ]</td>
<td></td>
</tr>
</tbody>
</table>
| | Go back to Step 2 to readjust window size. | Use arrows to adjust window size while viewing graph.
Rapid graph

Graphing has never been easier. With its full range of preset equations, rapid graph simplifies equation input. Use in conjunction with the rapid window function or with any graph created.

**Example**

Draw the graph for \( y = 2\sin(-2x+\pi) + 2 \) using the rapid graph function.

<table>
<thead>
<tr>
<th>Key Operation</th>
<th>Display</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ( Y= )</td>
<td>![Y= screen]</td>
<td>Enter the equation entry mode.</td>
</tr>
<tr>
<td>2 ( \text{EZ} )</td>
<td>![EZ screen]</td>
<td>Enter Rapid Graph mode and view the equation-type menu.</td>
</tr>
<tr>
<td>3 ( \downarrow ) ( \text{ENTER} )</td>
<td>![Select equation format]</td>
<td>Select the type of equation: Trigonometric, and view the equation format menu.</td>
</tr>
<tr>
<td>4 ( \text{ENTER} )</td>
<td>![Select sin equation format]</td>
<td>Select the sin equation format and view the sin equation style.</td>
</tr>
<tr>
<td>5 ( \text{ENTER} )</td>
<td>![Select second equation style]</td>
<td>Select the second equation style and input. If necessary, make changes to the coefficients.</td>
</tr>
<tr>
<td>6 ( \text{GRAPH} )</td>
<td>![Graph screen]</td>
<td>Draw the graph. (Note: Previous range values may affect the viewing window. To reset range values, use Rapid Window.)</td>
</tr>
</tbody>
</table>
Rapid window simplifies setting window size with a range of preset values. Use in conjunction with the rapid graph function or with any graph created.

**Example**

After using Rapid Graph to draw the graph of \( y = 2 \sin (-2x + \pi) + 2 \) (refer p. 11), set the viewing window using the rapid window function.

<table>
<thead>
<tr>
<th>Key Operation</th>
<th>Display</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 WINDOW</td>
<td><img src="image1.png" alt="Window Display" /></td>
<td>Enter viewing window setup mode.</td>
</tr>
<tr>
<td>2 EZ</td>
<td><img src="image2.png" alt="EZ Display" /></td>
<td>Enter Rapid Window mode.</td>
</tr>
<tr>
<td>3 ▼ ▶ ENTER</td>
<td><img src="image3.png" alt="Select Style" /></td>
<td>Select the No. 3 style and view the X-range menu.</td>
</tr>
<tr>
<td>4 ▼ ENTER (Five times) (or 5 ENTER)</td>
<td><img src="image4.png" alt="Select X-range" /></td>
<td>Select X-range No. 4: ((-1 &lt; X &lt; 10; \text{scl}=1)), and view the Y-range menu.</td>
</tr>
<tr>
<td>5 ▼ (Six times) (or 5)</td>
<td><img src="image5.png" alt="Select Y-range" /></td>
<td>Move the cursor to No. 5: ((-0.5 &lt; Y &lt; 5; \text{scl}=0.5))</td>
</tr>
<tr>
<td>7 ENTER</td>
<td><img src="image6.png" alt="Draw Graph" /></td>
<td>Select the Y-range and draw the graph.</td>
</tr>
</tbody>
</table>
Rapid zoom offers one-touch adjustment of window size while viewing the graph. No more guessing or wasting class time to find optimal values for window size.

**Example**

Adjust the viewing window for \( y = x^3 + x^2 - 2x \) to show the entire graph.

<table>
<thead>
<tr>
<th>Key Operation</th>
<th>Display</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Create the graph ( y = x^3 + x^2 - 2x ) using the following conditions: X-range: ( \text{xmin} = -3 ) ( \text{xmax} = 3 ) ( \text{xscl} = 1 ) Y-range: ( \text{ymin} = -1.5 ) ( \text{ymax} = 1.5 ) ( \text{yscl} = 0.5 )</td>
<td></td>
</tr>
</tbody>
</table>

2 | Enter Rapid Zoom mode. |
3 | Change X-range from \( \text{Ymax} = 1.5 \) to \( \text{Ymax} = 2 \). Draw the graph. |
4 | Repeat: Change Y-range from \( \text{Ymax} = 2 \) to \( \text{Ymax} = 2.5 \). Draw the graph |
5 | View display (adjusted). |
PC-LINK

Connect the EL-9400 with a PC or Macintosh computer to expand the possibilities of data exchange using PC-Link software.

**Procedure**

1. Turn off the EL-9400.

2. Connect the EL-9400 to the PC by using the CE-450L, PC-Link adaptor and PC connector (see above diagram).

3. Make sure that the RS-232C (serial port) is connected to the PC. Use of the connector is determined by the shape of the PC serial port (see below chart).

4. Open PC Link-Software.

5. Switch on EL-9400.

   * It is essential to use the same port for both the PC and the PC Link-Software.

6. Operate according to the instructions on the screen.

<table>
<thead>
<tr>
<th>Shape of PC serial port</th>
<th>Connecting procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 pin (male)</td>
<td>Connect the other side (25-pin side) of PC LINK adaptor to the serial port for the PC.</td>
</tr>
<tr>
<td>9 pin (male)</td>
<td>Connect the other side (25-pin side) of PC LINK adaptor to the 25-pin terminal of a converting adaptor. Also connect the other side (9-pin side) of the converting adaptor to the serial port for the PC.</td>
</tr>
<tr>
<td>8 pin (female)</td>
<td>For Macintosh</td>
</tr>
</tbody>
</table>

What is PC LINK?

- Creates and edits EL-9400 programs on a PC.
- Receives and saves programs and various data from EL-9400.
- Makes a backup of all the contents of EL-9400.
- Sends programs and various data to EL-9400.
- Loads image data of EL-9400.
- Converts programs and various data files into a Text File. Converts program text files into a Program File.
- Prints out programs and various data files.
Set to set communication

Transfer data between two EL-9400 calculators using the communication cable (CE-450L).

**Communication Procedure**

1. Plug the cable into both calculators.

2. Turn power on.

3. **Receiver**
   - Press 2nd F (OPTION)
   - Press ▼ ▼ ▼ ▼ (or D)
   - Specified LINK.

4. ENTER 

5. **Sender**
   - Press 2nd F (OPTION)
   - Press ▼ ▼ ▼ ▼ (or D)
   - Specified LINK.

6. ENTER ENTER

7. ENTER ENTER

8. ENTER ▼ ▼ ENTER

9. 2nd F EXE

**List of the SEND menu**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ALL</td>
<td>Selects and displays all files.</td>
</tr>
<tr>
<td>2. List</td>
<td>Selects and displays all list files.</td>
</tr>
<tr>
<td>3. GraphEq</td>
<td>Selects and displays all graph equations.</td>
</tr>
<tr>
<td>4. Program</td>
<td>Selects and displays all program files.</td>
</tr>
<tr>
<td>5. G_Data</td>
<td>Selects and displays all graph data files.</td>
</tr>
<tr>
<td>6. L_Data</td>
<td>Selects and displays all list data files.</td>
</tr>
<tr>
<td>7. Picture</td>
<td>Selects and displays all picture data files.</td>
</tr>
<tr>
<td>8. A~Z, Ø</td>
<td>Selects and displays all fixed memory of A to Z, and Ø</td>
</tr>
<tr>
<td>B BACKUP</td>
<td>Menu to send all data of files. Use this feature to send the entire content.</td>
</tr>
</tbody>
</table>
**OHP System**

Use the EL-9400 OHP system with the overhead projector to make classroom presentations convenient for the whole class to see.

**EL 94T (OHP system)**

- **OHP Projection Panel**
- **OHP Panel Controller**
- **AC adaptor (optional)**
- **CE-450L**
  - The CE-450L is included for separate use (see page 15)

---

**Procedure**

1. Switch off the OHP Panel Controller.

2. Plug in the cable connector of the OHP Projection Panel straight into the connection terminal of the OHP Panel Controller.
   
   *(The optional AC adaptor is recommended for extended use of the OHP Projection Panel.)*

3. Switch on the OHP Panel Controller.

4. Operating the OHP Panel Controller.
   
   The OHP Projection Panel display is synchronized with the display of the OHP Panel Controller. Place the OHP Projection Panel on top of the overhead projector to project images onto the screen.

5. Turn on the power of the overhead projector.
Menu tree 1

SET UP

A
Rad, Deg, FloatPt, Rect, Decimal, Eqn

B DRCG
1 Deg, 2 Rad, 3 Grad

C Fix/Sci
1 FloatPt, 2 Fix, 3 Sci, 4 Eng

D TAB
1 Rect, 2 Param

F ANSWER
1 Decimal, 2 Mixed, 3 Improp

G EDITOR
1 Eqn, 2 Online

FORMAT

A OFF, 1 ON, Connect, Sequen

B EXPRES
1 ON, 2 OFF

C Y'
1 ON, 2 OFF

D STYLE1
1 Connect, 2 Dot

MATH

A CALC
1 log2, 2^, 3 sin, 4 max, 5 d/dx, 6 dx

B NUM
1 abs, 2 round, 3 part, 4 fpart, 5 int, 6 min, 7 max, 8 lcm, 9 gcd

C PROB
1 random, 2 nPr, 3 nCr, 4!

D CONV
1 →deg, 2 →dms, 3 xy→r, 4 r→xy, 5 r→d, 6 d→r

E ANGLE
1 =, 2 ≠, 3 >, 4 ≥, 5 <, 6 ≤

F INEQ
1 and, 2 or, 3 not, 4 xor, 5 xnor
Menu tree 2

When coordinate system is Rect

CALC ▼

1 Value
2 Intsect
3 Minimum
4 Maximum
5 X, Ineq
6 Y, Ineq
7 inflec

CALC ▼

LIST ▼

A OPE
1 sortA( 2 sortD( 3 dim( 4 list( 5 sum( 6 prod( 7 seq( 8 aug... ( 9 varan( 10

B MATH
1 min( 2 max( 3 mean( 4 median( 5 sum( 6 prod( 7 stdDv( 8 varian( 9

C L_DATA
1 stoLD 2 RclLD

STAT

A EDIT
1 sortA( 2 sortD( 3 SetList 4 ClrList

B OPE
1 1_ Stats 2 2_ Stats

C CALC
1 Value

D REG 01 Med Med 02 ax+b 03 a+bx 04 x2 05 In 06 log 07 ab^ 08 aexp^ 09 x' 10 ax' 11 x' 12 y'

E G_DATA 1 StoGD 2 RclGD

DRAW

A DRAW 1 CrdDrw 2 Line 3 H Line 4 V Line 5 T Line 6 Draw 7 Shade( 8 DrawInv 9 Circle( 10 Text( 11

B POINT
1 PntON( 2 PntOFF( 3 PntCHG( 4 PxlON( 5 PxlOFF( 6 PxlCHG( 7 PxlTST( 12

C ON/OFF
1 DrawON 2 DrawOFF

D LINE
select line type

G SHADE
1 StoPict 2 RclPict

F PICT
1 StoPict 2 RclPict

18

SHARP
### Menu tree 4

#### EQ VAR
- **A XY**
  - 1 Y1
  - 2 Y2
  - 3 Y3
  - 4 Y4
  - 5 Y5
  - 6 Y6
  - 7 Y7
  - 8 Y8
  - 9 Y9
  - 0 Y0

#### WIN VAR
- **A XY**
  - 1 Xmin
  - 2 Xmax
  - 3 Xscl
  - 4 Ymin
  - 5 Ymax
  - 6 Yscl
  - 7 X_Fact
  - 8 Y_Fact

#### ZOOM VAR
- **A STOXY**
  - 1 Zm_Xmin
  - 2 Zm_Xmax
  - 3 Zm_Xscl
  - 4 Zm_Ymin
  - 5 Zm_Ymax
  - 6 Zm_Yscl

#### STAT VAR
- **A XY**
  - 01 n
  - 02 π
  - 03 ax
  - 04 ay
  - 05 xmin
  - 06 xmax
  - 07 ∑x
  - 08 ∑xy

- **B REGEN**
  - 09 ∑xy
  - 10 y
  - 11 sy
  - 12 ay
  - 13 ymin
  - 14 ymax
  - 15 ∑y
  - 16 ∑y²

- **C POINTS**
  - 01 RegEqn
  - 02 a
  - 03 b
  - 04 c
  - 05 d
  - 06 r²
  - 07 R²
  - 08 resid
  - 09 Med
  - 10 Q1
  - 11 Q3

#### PRGM
- **A EXEC**
  - 01
  - 02
  - 03
  - 04
  - 05
  - 06

- **B EDIT**
  - 01

- **C NEW**
  - Create new program
  - Press [ENTER]
Menu tree 6

Y= ( )

RECT MODE
Y1=
Y2=
Y3=
Y4=
Y5=
Y6=
Y7=
Y8=
Y9=
Y0=

PAR MODE
X1T=
Y1T=
X2T=
Y2T=
X3T=
Y3T=
X4T=
Y4T=
X5T=
Y5T=
X6T=
Y6T=

A SELECT
1. All
2. List
3. GraphEq
4. Program

B BACKUP
back up

Press [INTER]
## Specifications

<table>
<thead>
<tr>
<th>Dimensions W x D x H (mm)</th>
<th>163 x 76 x 19.5 (without hardcase)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>AAA x 4</td>
</tr>
<tr>
<td>Backup Battery</td>
<td>CR2032 x 1</td>
</tr>
<tr>
<td>Display</td>
<td></td>
</tr>
<tr>
<td>Size (dot)</td>
<td>96 x 64</td>
</tr>
<tr>
<td>Line x Characters</td>
<td>8 x 16</td>
</tr>
<tr>
<td>Character Size (dot)</td>
<td>5 x 7</td>
</tr>
<tr>
<td>Digits (mantissa + exponent)</td>
<td>10 + 2</td>
</tr>
<tr>
<td>Memory</td>
<td></td>
</tr>
<tr>
<td>Total Memory Size</td>
<td>32 KB</td>
</tr>
<tr>
<td>Constant Memory</td>
<td>27 + last answer memory</td>
</tr>
<tr>
<td>Accessory</td>
<td></td>
</tr>
<tr>
<td>Protective hard case</td>
<td></td>
</tr>
<tr>
<td>Standard Features</td>
<td></td>
</tr>
<tr>
<td>Graphing</td>
<td></td>
</tr>
<tr>
<td>Function graphing</td>
<td>Up to 10</td>
</tr>
<tr>
<td>Parametric graphing</td>
<td>Up to 6</td>
</tr>
<tr>
<td>Zoom, Trace</td>
<td></td>
</tr>
<tr>
<td>Table of function values</td>
<td></td>
</tr>
<tr>
<td>Statistics</td>
<td></td>
</tr>
<tr>
<td>Regression models</td>
<td>10</td>
</tr>
<tr>
<td>Scatter Plots and Histograms</td>
<td></td>
</tr>
<tr>
<td>Box-and-Whisker Diagrams</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>List</td>
<td>Up to 6 (Maximum length : 999)</td>
</tr>
<tr>
<td>Programming</td>
<td></td>
</tr>
<tr>
<td>Trigonometry functions (including sec, csc, cot)</td>
<td></td>
</tr>
<tr>
<td>Fraction/Decimal conversions</td>
<td></td>
</tr>
<tr>
<td>Last entry recall</td>
<td></td>
</tr>
<tr>
<td>Last answer recall</td>
<td></td>
</tr>
<tr>
<td>Features unique to Sharp</td>
<td></td>
</tr>
<tr>
<td>Equation editor, Shift/Change, Slide show (Built-in), Rapid graph, Rapid window, Rapid zoom, List grouping</td>
<td></td>
</tr>
<tr>
<td>Peripheral</td>
<td></td>
</tr>
<tr>
<td>CE-450L</td>
<td>Unit-to-unit communications cable</td>
</tr>
<tr>
<td>CE-LK1</td>
<td>PC-Link (Print screen/Data storage)</td>
</tr>
<tr>
<td>EL-94T</td>
<td>OHP system (includes controller)</td>
</tr>
</tbody>
</table>

* Design and specifications are subject to change without notice.
* Some products may not be available in some countries.
### Rectangular coordinate graphs

**Example**

Use rectangular coordinate to enter two graph equations and shade the area surrounded by the graphs

Before carrying out the following operation, press the reset switch located on the back of the unit and press **CL** keys (caution: previously entered equations and memory will be erased).

<table>
<thead>
<tr>
<th>Key Operation</th>
<th>Display</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2nd F SET UP E 1</td>
<td><img src="image1" alt="Display1" /></td>
<td>Specify Rect mode on the screen. As shown, Rect corresponds to [COORD]. The example shows the initial settings of the EL-9400.</td>
</tr>
<tr>
<td>2 Y = 7 sin X/T + X/T ENTER</td>
<td><img src="image2" alt="Display2" /></td>
<td>Enter graph equation “7sinX+X” at Y1.</td>
</tr>
<tr>
<td>3 X/T + 1 ENTER</td>
<td><img src="image3" alt="Display3" /></td>
<td>Enter graph equation “X+1” at Y2.</td>
</tr>
<tr>
<td>4 GRAPH</td>
<td><img src="image4" alt="Display4" /></td>
<td>Display the graph.</td>
</tr>
<tr>
<td>5 2nd F DRAW G 1</td>
<td><img src="image5" alt="Display5" /></td>
<td>Specify the area surrounded by the two graph equations to be shaded. (Y2&lt;Y&lt;Y1 on screen shows area to be shaded as larger than Y2 and smaller than Y1).</td>
</tr>
<tr>
<td>6 GRAPH</td>
<td><img src="image6" alt="Display6" /></td>
<td>Return to the graph display and the specified area will be shaded.</td>
</tr>
</tbody>
</table>
Example

Use the CALC function to solve graph equations
(The coordinate axis is rectangular coordinates.)

Before carrying out the following operation, press the reset switch located on the back of the unit and press \[ \text{CL} \] \[ \text{ENTER} \] keys (caution: previously entered equations and memory will be erased).

### Key Operation

#### Display

1. \[ \text{Y} = 0 \times 5 \text{ X/T} \]
   \[ x^2 - 5 \text{ ENTER} \]

2. \[ 4 \text{ 2nd F } \sqrt{} \text{ X/T} \]
   \[ + 7 \text{ } \text{ ENTER} \]

3. \[ \text{GRAPH} \]

4. \[ \text{2nd F } \text{ CALC } 1 \]

5. \[ 3 \text{ ENTER} \]

6. \[ \text{2nd F } \text{ CALC } 2 \]

7. \[ \text{2nd F } \text{ CALC } 2 \]

### Notes

Enter the graph equation “0.5X²-5” at Y1.

Enter the graph equation “4/\sqrt{X+7}-10” at Y2.

Display the graph.

Specify the value of X to find the value of Y, by specifying the value of CALC.

Enter “3” as the value of X and the value of Y is calculated.

The values X and Y appear at the bottom of the screen and the cursor appears at the corresponding point on the graph.

Specify “Intsect” function to calculate the intersection point of the two graphs.

After completion of the calculation, the values of the XY intersection will appear at the bottom of the screen, and the cursor will appear at the corresponding point on the graph, as before.

The graph is intersected at two points. Carry out the same operation as in 6 to find the second intersection.

After completion of the calculation, the values of the XY intersection will appear at the bottom of the screen, and the cursor will appear at the corresponding point on the graph, as before.
## Statistics calculations

### Example

10 students achieved the following results in a mathematics examination. Draw a graph to classify these results into top, bottom and average score.

Exam results: 68, 73, 92, 86, 78, 95, 69, 75, 82, 81

Before carrying out the following operation, press the reset switch located on the back of the unit and press keys (caution: previously entered equations and memory will be erased).

<table>
<thead>
<tr>
<th>Key Operation</th>
<th>Display</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2nd F SET UP D 2 C 2</td>
<td></td>
<td>Specify two figures after the decimal point on the set up screen.</td>
</tr>
<tr>
<td>2 STAT A ENTER</td>
<td></td>
<td>Enter all the exam results into the list L1.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Select the variable quantity of the statistics from the statistics mode.</td>
</tr>
<tr>
<td>3 STAT C 1</td>
<td></td>
<td>Specify the list L1 containing the exam data.</td>
</tr>
<tr>
<td>4 2nd F L1</td>
<td></td>
<td>Calculates the quantity of the statistics such as average, standard deviation, total and bottom score.</td>
</tr>
<tr>
<td>5 ENTER</td>
<td></td>
<td>Set the screen for the various specified values in order to draw the statistical graph with PLOT1.</td>
</tr>
<tr>
<td>6 2nd F STAT PLOT A ENTER</td>
<td></td>
<td>Input of the specified values for drawing a histogram from the list L1 of the statistical quantity has been completed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>on/off: set whether to graph or not</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DATA: select variable 1(X) or variable 2 (XY).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>List X: set the list of the corresponding graph.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freq: set frequency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GRAPH: set graph format</td>
</tr>
<tr>
<td>7 ENTER ▼ ENTER ▼ 2nd F L1 ▼ ▼</td>
<td></td>
<td>Draw the graph by setting the most suitable screen for the statistical graph.</td>
</tr>
<tr>
<td>8 ZOOM A 9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>