Sharp EL-9900
Graphing Calculator

Basic Keyboard Activities

General Mathematics

Algebra

Programming

Advanced Keyboard Activities
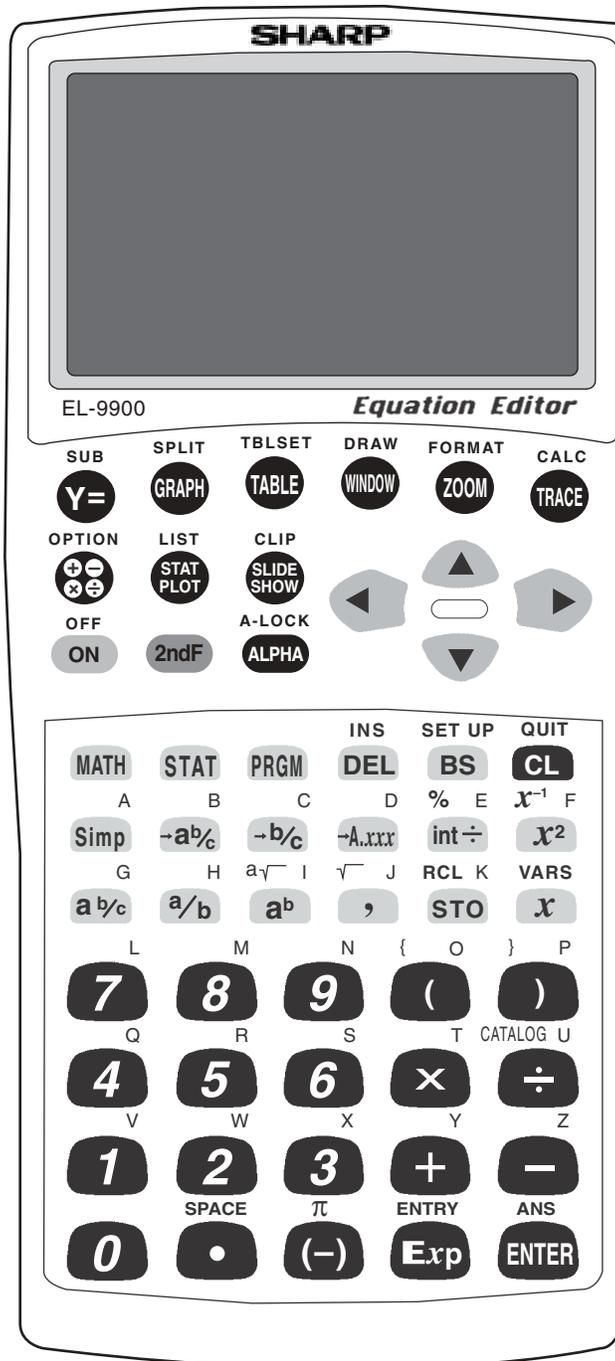
Algebra

Calculus

Statistics

Trigonometry

Programming

Sharp EL-9900
Graphing Calculator
Basic Keypad

SHARP

EL-9900 *Equation Editor*

SUB	SPLIT	TBLSET	DRAW	FORMAT	CALC
Y=	GRAPH	TABLE	WINDOW	ZOOM	TRACE

OPTION	LIST	CLIP
⊕⊖⊗⊘	STAT PLOT	SLIDE SHOW

OFF		A-LOCK
ON	2ndF	ALPHA

◀ ▲ ▶ ▼

			INS	SET UP	QUIT
MATH	STAT	PRGM	DEL	BS	CL
A	B	C	D	% E	x^{-1} F
Simp	→a^b/$_c$	→^{b}/$_c$	→A.xxx	int÷	x^2
G	H	a√ I	√ J	RCL K	VARS
a ^{b}/$_c$	^{a}/$_b$	a^b	,	STO	x
L	M	N {	O }	P
7	8	9	(	)
Q	R	S	T	CATALOG U
4	5	6	×	÷
V	W	X	Y	Z
1	2	3	+	−
	SPACE	π	ENTRY	ANS
0	•	(−)	Exp	ENTER

BASIC ARITHMETIC

Press ⊞⊟⊠⊞ to access the calculation screen.

1. Add 9 to 27 twice.

STEP 1:   Enter 27 by pressing 2 7 .
STEP 2:   Add by pressing the + key.
STEP 3:   Enter 9 by pressing 9 .
STEP 4:   Find the first sum by pressing the ENTER key.
STEP 5:   Add 9 again by pressing +   9 ENTER .

```
27+9
                    36
Ans+9
                    45
```

2. Multiply $\frac{3}{4}$ to $\frac{5}{2}$. Then, convert to a decimal.

STEP 1:   Enter $\frac{3}{4}$ by pressing 3 a/b 4 ▶ .
STEP 2:   Multiply by pressing the × key.
STEP 3:   Enter $\frac{5}{2}$ by pressing 5 a/b 2 ▶ .
STEP 4:   Find the product by pressing ENTER .
STEP 5:   Convert to an improper fraction by pressing →b/c ENTER .
STEP 6:   Convert to a mixed number by pressing →ab/c ENTER .

```
 3   5
 — × —
 4   2
                  1.875
Ans→b/c
                   15
                   ——
                    8
```

Basic Keyboard/GENERAL MATHEMATICS USING THE SHARP EL-9900

PARENTHESES AND EDITING

Press ⊞⊟⊠⊞ to access the calculation screen.

A trapezoid is a four-sided figure where two of the sides are parallel and the other two sides are not parallel.
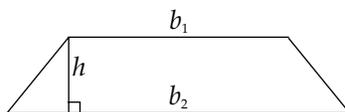
The area of a trapezoid is defined to be Area $= (\frac{h}{2}) \bullet (b_1 + b_2)$ where h is the height or distance between the parallel sides b_1 and b_2.

1. Calculate $(\frac{5}{2}) \times (3 + 4)$.

STEP 1:   Enter $(\frac{5}{2})$ by pressing ⟨ (⟩ ⟨ 5 ⟩ ⟨ a/b ⟩ ⟨ 2 ⟩ ⟨ ▶ ⟩ ⟨) ⟩.

STEP 2:   Multiply by pressing the ⟨ × ⟩ key.

STEP 3:   Enter (3 + 4) by pressing ⟨ (⟩ ⟨ 3 ⟩ ⟨ + ⟩ ⟨ 4 ⟩ ⟨) ⟩ .

STEP 4:   Calculate by pressing the ⟨ ENTER ⟩ key.

            The answer is 17.5

2. Edit the previous calculation to find $(\frac{5}{2}) \bullet (7 + 4)$.

STEP 1:   Edit the previous calculation by pressing ⟨ 2ndF ⟩ ⟨ ENTRY ⟩ ⟨ ◀ ⟩ ⟨ ◀ ⟩
            ⟨ ◀ ⟩ ⟨ ◀ ⟩ to move the blinking cursor to highlight the 3.

STEP 2:   Delete the 3 by pressing ⟨ DEL ⟩ to backspace delete.

STEP 3:   Insert the 7 by pressing ⟨ 7 ⟩ .

STEP 4:   Calculate by pressing the ⟨ ENTER ⟩ key.

            The answer is 27.5.
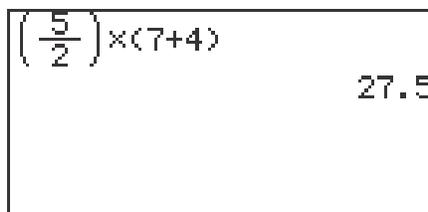
Basic Keyboard/GENERAL MATHEMATICS USING THE SHARP EL-9900

PERCENTS

Press ⊞⊟ to access the calculation screen.

Mixtures contain two or more components. Percents are often used to
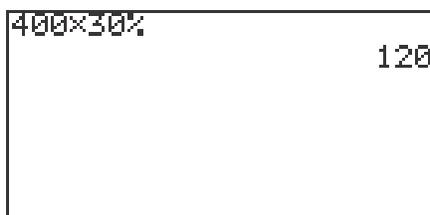express the amount of a component in a mixture.

1. Find 30% of 400.

STEP 1:   Enter 400 by pressing 4 0 0 .
STEP 2:   Multiply by pressing the × key.
STEP 3:   Enter 30% by pressing 3 0 2ndF % ENTER .
               The answer is 120.

```
400×30%
                              120



```

2. Find what percent of 500 is 150.

STEP 1:   Enter 150 by pressing 1 5 0 .
STEP 2:   Divide by pressing the ÷ key.
STEP 3:   Enter 500 by pressing 5 0 0 .
STEP 4:   Calculate by percentage by pressing 2ndF % ENTER .
               The answer is 30%.

```
150÷500%
                               30



```

Basic Keyboard/GENERAL MATHEMATICS USING THE SHARP EL-9900
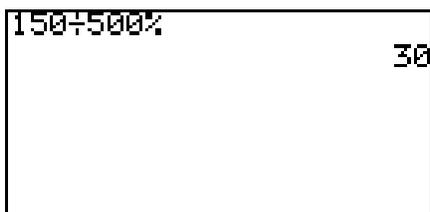
PERCENTS (continued)

3. Add 20% to 300.

STEP 1:   Enter 300 by pressing ⬜3 ⬜0 ⬜0 .

STEP 2:   Add by pressing the ⬜+ key.

STEP 3:   Enter 20% by pressing ⬜2 ⬜0 ⬜2ndF ⬜% ⬜×

               ⬜3 ⬜0 ⬜0 ⬜ENTER .

               The answer is 360.

```
300+20%×300
                    360


```
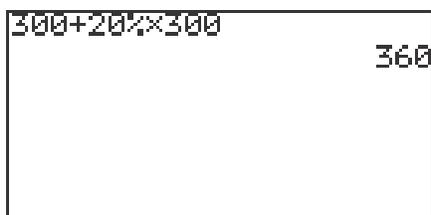
4. Subtract 40% from 200.

STEP 1:   Enter 200 by pressing ⬜2 ⬜0 ⬜0 .

STEP 2:   Subtract by pressing the ⬜– key.

STEP 3:   Enter 40% by pressing ⬜4 ⬜0 ⬜2ndF ⬜% ⬜×

               ⬜2 ⬜0 ⬜0 ⬜ENTER .

               The answer is 120.

```
200-40%×200
                    120


```

Basic Keyboard/GENERAL MATHEMATICS USING THE SHARP EL-9900

MEMORY USAGE

Press ⊞⊟⊠⊞ to access the calculation screen.

1. Calculate 2 • 3 and store the value in A. Recall the A to see the product stored in A.

STEP 1:   Multiply 2 and 3 by pressing ⟦2⟧ ⟦×⟧ ⟦3⟧ ⟦ENTER⟧ .
               The product is 6.
STEP 2:   Store 6 into A by pressing ⟦STO⟧ ⟦ALPHA⟧ ⟦A⟧ ⟦ENTER⟧ .
STEP 3:   Clear the screen by pressing ⟦CL⟧ .
STEP 4:   Recall A by pressing ⟦ALPHA⟧ ⟦A⟧ ⟦ENTER⟧ .

2. Calculate 3 • 5 and store the value in M. Calculate 4 • 5 and add this product to M. Then, recall the M to see the sum of the products.

STEP 1:   Multiply 3 and 5 by pressing ⟦3⟧ ⟦×⟧ ⟦5⟧ ⟦ENTER⟧ .
               The product is 15.
STEP 2:   Store 15 into M by pressing ⟦STO⟧ ⟦ALPHA⟧ ⟦M⟧ ⟦ENTER⟧ .
STEP 3:   Multiply 4 and 5 by pressing ⟦4⟧ ⟦×⟧ ⟦5⟧ ⟦ENTER⟧ .
               The product is 20.
STEP 4:   Add 20 to M by pressing ⟦+⟧ ⟦ALPHA⟧ ⟦M⟧ .
               The sum of the products is 35.

3. Recall the previous answer.

STEP 1:   With the display screen cleared, recall the previous answer
               by pressing ⟦2ndF⟧ ⟦ANS⟧ ⟦ENTER⟧ .

Basic Keyboard/GENERAL MATHEMATICS USING THE SHARP EL-9900

POWERS AND ROOTS

Press ⊞⊟⊠⊞ to access the calculation screen.

1. Calculate 15^2.

STEP 1:   Enter 15 by pressing $\boxed{1}$ $\boxed{5}$.

STEP 2:   Square by pressing the $\boxed{x^2}$ key.

STEP 3:   Calculate by pressing the $\boxed{\text{ENTER}}$ key.

                The answer is 225.

2. Calculate 3^4.

STEP 1:   Enter 3 by pressing $\boxed{3}$.

STEP 2:   Exponentiate by pressing the $\boxed{a^b}$ key.

STEP 3:   Enter 4 by pressing $\boxed{4}$.

STEP 4:   Calculate by pressing the $\boxed{\text{ENTER}}$ key.

                The answer is 81.

```
15²
                        225
3⁴
                         81
```

3. Calculate $\sqrt{196}$.

STEP 1:   Enter the square root by pressing $\boxed{\text{2ndF}}$ $\boxed{\sqrt{}}$.

STEP 2:   Enter 196 by pressing $\boxed{1}$ $\boxed{9}$ $\boxed{6}$.

STEP 3:   Calculate by pressing the $\boxed{\text{ENTER}}$ key.

                The answer is 14.

LOGARITHMS AND EXPONENTIALS

Press ⊞⊟ to access the calculation screen.
      ⊠⊞

1. Find log 3.

STEP 1:   Enter log by pressing MATH   A   4 .
STEP 2:   Enter 3 by pressing the 3   key.
STEP 3:   Calculate by pressing the ENTER key.
                 The answer is 0.4771.

```
log 3
                0.477121254
```
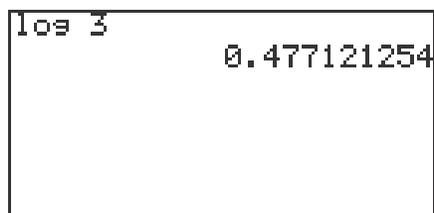
2. Find 10^(3÷4).

STEP 1:   Enter 10 by pressing MATH   A   5 .
STEP 2:   Enter (3 ÷ 4) by pressing 3   ÷   4 .
STEP 3:   Calculate by pressing the ENTER key.
                 The answer is 5.6234.

```
10^(3÷4)
                5.623413252
```
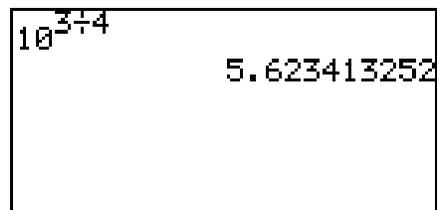
TRIGONOMETRIC FUNCTIONS

The definitions of the trigonometric functions with regard to the right triangle can be used to find distances between points. The sine function is defined to be opposite side/hypotenuse, the cosine function is adjacent side/hypotenuse, and the tangent function is opposite side/adjacent side.
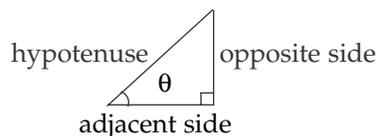
Put the calclator in degree mode by pressing 2ndF   SETUP   B   1 .

1. Find sin 30°.
STEP 1:   Press ⊞⊟ to access the calculation screen.
STEP 2:   Enter sin 30 by pressing MATH   A   1   3   0 .
STEP 3:   Calculate by pressing the ENTER key.
                 The answer is 0.5.

2. Find 3cos 20°.
STEP 1:   Enter 3 cos 20 by pressing 3   MATH   A   2   2   0 .
STEP 2:   Calculate by pressing the ENTER key.
                 The answer is 2.819

3. Find tan 50°.
STEP 1:   Enter tan 50 by pressing MATH   A   3   5   0 .
STEP 2:   Calculate by pressing the ENTER key.
                 The answer is 1.19.

Remember that cotangent = 1/tangent, secant = 1/cosine, and cosecant = 1/sine.

TRIGONOMETRIC FUNCTIONS (continued)

Put the calclator in radian mode by pressing $\boxed{\text{2ndF}}$ $\boxed{\text{SETUP}}$ $\boxed{\text{B}}$ $\boxed{2}$.

1. Find sin 2.1.

STEP 1:   Press $\boxed{\substack{\boxplus\boxminus\\\boxtimes\boxplus}}$ to access the calculation screen.

STEP 2:   Enter sin 2.1 by pressing $\boxed{\text{MATH}}$ $\boxed{\text{A}}$ $\boxed{1}$ $\boxed{2}$ $\boxed{\cdot}$ $\boxed{1}$.

STEP 3:   Calculate by pressing the $\boxed{\text{ENTER}}$ key.

The answer is .8632

2. Find cos (-1.7).

STEP 1:   Enter 3 cos (-1.7) by pressing $\boxed{3}$ $\boxed{\text{MATH}}$ $\boxed{\text{A}}$ $\boxed{2}$ $\boxed{(-)}$ $\boxed{1}$

$\boxed{\cdot}$ $\boxed{7}$.

STEP 2:   Calculate by pressing the $\boxed{\text{ENTER}}$ key.

The answer is -.3865

3. Find tan 0.

STEP 1:   Enter tan 0 by pressing $\boxed{\text{MATH}}$ $\boxed{\text{A}}$ $\boxed{3}$ $\boxed{0}$.

STEP 2:   Calculate by pressing the $\boxed{\text{ENTER}}$ key.

The answer is zero.

Basic Keyboard/GENERAL MATHEMATICS USING THE SHARP EL-9900

ANGLE CONVERSIONS

Angles can be expressed in degrees and radians. Degrees can be expressed in either decimal degrees or degrees-minutes-seconds. The sum of the angles of a triangle is 180° or π radians.

Press ⊞ to access the calculation screen.

1. Convert 30° to radians.

Put the calclator in radian mode by pressing 2ndF   SETUP   B   2   ⊟ .

STEP 1:   Enter 30° by pressing 3   0   MATH   E   1 .
STEP 2:   Convert to radians by pressing ENTER .
                The answer is 0.5236.

```
30°
                    0.523598775



```
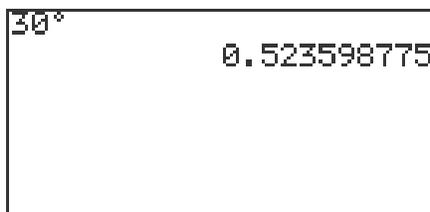
2. Convert 50°35' to decimal degrees.

STEP 1:   Enter 50°35' by pressing 5   0   MATH   E   1   3   5
                 MATH   E   2 .
STEP 2:   Calculate decimal degrees by pressing ENTER .
                The answer is 50.5833.

```
50°35'
                   50.58333333



```

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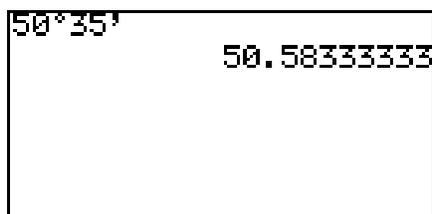
ANGLE CONVERSIONS (continued)

3. Convert 40.235° to degrees-minutes-seconds.

STEP 1:   Enter 40.235° by pressing $\boxed{4}$ $\boxed{0}$ $\boxed{\cdot}$ $\boxed{2}$ $\boxed{3}$ $\boxed{5}$.

STEP 2:   Calculate degrees-minutes-seconds by pressing
                 $\boxed{\text{MATH}}$ $\boxed{\text{D}}$ $\boxed{2}$ $\boxed{\text{ENTER}}$.
                 The answer is 40°14'06".
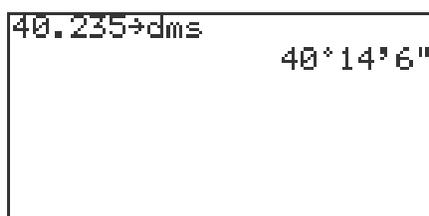
```
40.235⇒dms
                 40°14'6"
```

4. Convert 1.25 radians to degrees.

Put the calclator in degree mode by pressing $\boxed{\text{2ndF}}$ $\boxed{\text{SETUP}}$ $\boxed{\text{B}}$ $\boxed{1}$ $\boxed{\text{⊞⊟⊠⊞}}$.

STEP 1:   Enter 1.25 radians by pressing $\boxed{1}$ $\boxed{\cdot}$ $\boxed{2}$ $\boxed{5}$ $\boxed{\text{MATH}}$
                 $\boxed{\text{E}}$ $\boxed{4}$.

STEP 2:   Convert to degrees by pressing $\boxed{\text{ENTER}}$.
                 The answer is 71.6°.

```
1.25ʳ
                 71.61972439
```

Basic Keyboard/GENERAL MATHEMATICS USING THE SHARP EL-9900
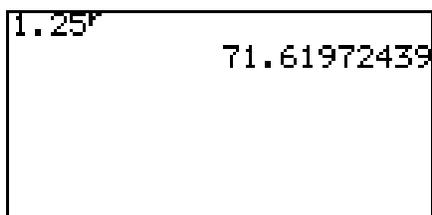
PROBABILITY

Press ⊞ to access the calculation screen.

1. Find five factorial or 5!.

STEP 1:   Enter 5! by pressing ⎡5⎤ ⎡MATH⎤ ⎡C⎤ ⎡7⎤ .

STEP 2:   Calculate by pressing ⎡ENTER⎤ .

                 The answer is 120.

```
5!
                      120


```

2. Find the number of combinations of 2 from a group of 5.

STEP 1:   Enter the large number 5 by pressing ⎡5⎤ .

STEP 2:   Enter the combination symbol by pressing ⎡MATH⎤ ⎡C⎤ ⎡6⎤ .

STEP 3:   Enter the small number 2 and calculate by pressing
                 ⎡2⎤ ⎡ENTER⎤ .
                 The answer is 10.

Permutations are found in the same manner.

3. Randomly select a person from an ordered group of 10.

STEP 1:   Access the random integer command by pressing
                 ⎡MATH⎤ ⎡C⎤ ⎡2⎤ .

STEP 2:   Enter the lower bound of 1 by pressing ⎡1⎤ ⎡,⎤ .

STEP 3:   Enter the upper bound of 10 by pressing ⎡1⎤ ⎡0⎤ ⎡)⎤ .

STEP 4:   Calculate the random person by pressing ⎡ENTER⎤ .
                 Answers will vary.

Basic Keyboard/GENERAL MATHEMATICS USING THE SHARP EL-9900

ONE-VARIABLE STATISTICS

1. Calculate statistics for a one-variable data set.

STEP 1: Turn the calculator on and press $\boxed{\text{STAT}}$ to enter the statistics menu.
Press $\boxed{\text{A}}$ **(EDIT)** $\boxed{\text{ENTER}}$ to view the statistics data entry screen.
If there is a data set present within the lists on your calculator, use the
arrow keys to move to the list, if necessary, and press $\boxed{\blacktriangle}$ to highlight the
list label. Press $\boxed{\text{DEL}}$ $\boxed{\text{ENTER}}$ to delete the old data. Repeat for other lists
of data.

STEP 2: Move the highlighter to the cell directly below the L1 in the table.
Enter the following data set:

25	32	28	33	31	27	40	38	29	30

STEP 3: Check the data you have entered and correct any errors you may find.
Press $\boxed{\text{2ndF}}$ $\boxed{\text{QUIT}}$ to exit the data entry screen. To calculate the numerical
descriptions of the data set, press $\boxed{\text{STAT}}$ $\boxed{\text{C}}$ **(CALC)** and $\boxed{1}$ **(1_Stats)**.
Press $\boxed{\text{ENTER}}$ and the statistical results will appear.

2. The statistics displayed are:

1. the average or mean value of the data set, $\overline{x}$;
2. the standard deviation assuming the data set is a sample from a
    population, sx;
3. the standard deviation assuming the data set represents the entire
    population, σx;
4. the sum of the data values, $\sum x$;
5. the sum of the squared data values, $\sum x^2$;

Press $\boxed{\blacktriangledown}$ five times to see more of the statistics.

6. the number of values in the data set, n;
7. the minimum value in the data set, $x$min;
8. the first quartile (25th percentile), Q1;
9. the median (50th percentile), Med;
10. the third quartile (75th percentile), Q3; and

Press $\boxed{\blacktriangledown}$ one more time to see the final statistic.

11. the maximum value in the data set, $x$max.

Basic Keyboard/GENERAL MATHEMATICS USING THE SHARP EL-9900

HISTOGRAM FOR A ONE-VARIABLE DATA SET

Steps for creating a data set's histogram

STEP 1: Turn the calculator on, press $\boxed{\text{STAT}}$ $\boxed{\text{A}}$ **(EDIT)** $\boxed{\text{ENTER}}$ to view the statistics data entry screen. Delete old data sets.

STEP 2: Move the highlighter to the cell directly below the L1 in the table and enter the following data set:

15	28	17	36	38	19	13	25	27	41

STEP 3: Check the data you have entered by pressing $\boxed{\blacktriangle}$ to move back through the data.

STEP 4: To graph a histogram that represents the data set, you must first press $\boxed{\text{STAT PLOT}}$ $\boxed{\text{A}}$ **(PLOT1)** and press $\boxed{\text{ENTER}}$. A PLOT1 setup screen will appear. Turn the plot on by pressing $\boxed{\text{ENTER}}$. Select one-variable data by pressing $\boxed{\blacktriangledown}$ $\boxed{\text{ENTER}}$. Set the list to L1 by pressing $\boxed{\blacktriangledown}$ $\boxed{\text{2ndF}}$ $\boxed{\text{L1}}$ $\boxed{\text{ENTER}}$. A blank Freq: prompt indicates the data is non-weighted and the frequencies are one. Choose the histogram graph by pressing $\boxed{\blacktriangledown}$ $\boxed{\text{STAT PLOT}}$ $\boxed{\text{A}}$ **(HIST)** and $\boxed{1}$ **(Hist)**.

STEP 5: Set the calculator to rectangular graphing by pressing $\boxed{\text{2ndF}}$ $\boxed{\text{SET UP}}$ $\boxed{\text{E}}$ **(COORD)** $\boxed{1}$ **(Rect)** and press $\boxed{\text{2ndF}}$ $\boxed{\text{QUIT}}$.

STEP 6: Set the viewing window by pressing $\boxed{\text{WINDOW}}$. Set the horizontal axis to $10 < x < 50$ with Xscl = 10 by pressing $\boxed{1}$ $\boxed{0}$ $\boxed{\text{ENTER}}$ $\boxed{5}$ $\boxed{0}$ $\boxed{\text{ENTER}}$ $\boxed{1}$ $\boxed{0}$ $\boxed{\text{ENTER}}$. Set the vertical axis to $0 < y < 5$ with Yscl = 1 by pressing $\boxed{0}$ $\boxed{\text{ENTER}}$ $\boxed{5}$ $\boxed{\text{ENTER}}$ $\boxed{1}$ $\boxed{\text{ENTER}}$.

View the histogram by pressing $\boxed{\text{GRAPH}}$.

BOX-AND-WHISKER CHART FOR A ONE-VARIABLE DATA SET

Steps for creating a data set's box-and-whisker chart

STEP 1: Press ⃞STAT to enter the statistics menu. Delete old data and enter the following data set in L1:

1   1   1   2   2   2   2   3   4   4

STEP 2: To construct a box-and-whisker chart, first press ⃞STAT PLOT ⃞A ⃞ENTER. Press ⃞ENTER to turn PLOT1 on. Press ⃞▼ ⃞ENTER to choose one-variable data. Press ⃞▼ ⃞2ndF ⃞L1 ⃞ENTER to enter L1 as the data list. Leave the Freq prompt blank. Set the graph to a box-and-whisker chart by pressing ⃞▼ ⃞STAT PLOT ⃞E **(BOX)** ⃞1 **Box**.

STEP 3: In the example, the data is discrete with a smallest value of 1 and a largest value of 4. Set the viewing window to $0 < x < 5$ with Xscl = 1. Next, set the vertical axis to $0 < y < 1$ with Yscl = 1.

STEP 4: To view the box-and-whisker chart for the data, press ⃞GRAPH .
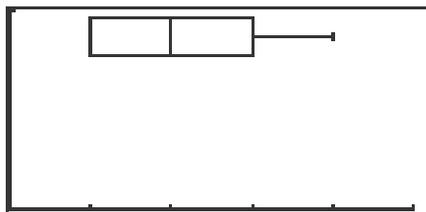
STEP 5: Press ⃞TRACE followed by ⃞◄ and ⃞► to view the five values making up the box-and whisker chart.

STEP 6: Turn PLOT1 off by pressing ⃞STAT PLOT ⃞ENTER ⃞► ⃞ENTER ⃞2ndF ⃞QUIT .

Basic Keyboard/GENERAL MATHEMATICS USING THE SHARP EL-9900

PIE CHART FOR A
ONE-VARIABLE DATA SET

Steps for creating a pie chart from count data

STEP 1: Press ⬚STAT⬚ to enter the statistics menu. Delete old data and enter the
following data set in L1 using weights in L2:

24   18   40   10

STEP 2: To construct a pie chart, first press ⬚STAT PLOT⬚ ⬚ENTER⬚ . Press ⬚ENTER⬚
to turn PLOT1 on. Press ⬚▼⬚ ⬚ENTER⬚ to choose one-variable data. Press ⬚▼⬚
⬚2ndF⬚ ⬚L1⬚ ⬚ENTER⬚ to enter L1 as the data list. Leave the Freq prompt
blank. Set the graph to a pie chart by pressing ⬚▼⬚ ⬚STAT PLOT⬚ ⬚F⬚ **(PIE)** ⬚1⬚
(PIE) .

STEP 3: To view the pie chart for the data, press ⬚GRAPH⬚ .
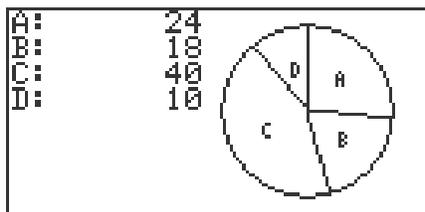
STEP 4: Press ⬚TRACE⬚ followed by ⬚◄⬚ and ⬚►⬚ to highlight and mark the pieces
of the pie chart.

STEP 5: Turn PLOT1 off by pressing ⬚STAT PLOT⬚ ⬚ENTER⬚ ⬚►⬚ ⬚ENTER⬚
⬚2ndF⬚ ⬚QUIT⬚ .

STATISTICS FOR A
TWO-VARIABLE DATA SET

Steps for calculating statistics for a two-variable data set

STEP 1: Turn the calculator on and press $\boxed{\text{STAT}}$ to enter the statistics menu. Press $\boxed{\text{A}}$ **(EDIT)** $\boxed{\text{ENTER}}$ to access the data entry screen. Delete old data by highlighting L1 and pressing $\boxed{\text{DEL}}$ $\boxed{\text{ENTER}}$. Repeat for other lists.

STEP 2: Enter the following data set:

X	Y
25	32
28	33
31	27
40	38
29	30

STEP 3: Check the data you have entered and correct any errors you may find. To calculate the numerical descriptions of the two variables, press $\boxed{\text{2ndF}}$ $\boxed{\text{QUIT}}$ $\boxed{\text{STAT}}$ $\boxed{\text{C}}$ **(CALC)** $\boxed{\text{2}}$ **2_Stats**. Press $\boxed{\text{ENTER}}$ and the statistical results will appear.

STEP 4: Press $\boxed{\blacktriangledown}$ to view the remaining statistics.

The statistics displayed are:
1. the average or mean value of the variable, $\overline{x}$ or $\overline{y}$;
2. the standard deviation assuming the data points are a sample from a population, sx or sy;
3. the standard deviation assuming the data points represents the entire population, σx or σy;
4. the sum of the values, Σx or Σy;
5. the sum of the squared values, Σx^2 or Σy^2;
6. the number of data points, n;
7. the minimum variable value, xmin or ymin;
8. the maximum variable value, xmax or ymax; and
9. the sum of the x and y products, Σxy.

SCATTER DIAGRAM
FOR A TWO-VARIABLE DATA SET

Steps for drawing a scatter diagram for a two-variable data set

STEP 1: Consider the following table listing the revenue for a large corporation:

Year	Revenue (in millions of dollars)
1	48.63
2	48.86
3	48.91
4	49.69
5	51.10
6	52.00
7	52.03

STEP 2: Access the statistics data entry screen and delete old data.

STEP 3: Enter the data using L1 for the year and L2 for the revenue (in millions of dollars). Check the data and correct any errors you may find.

STEP 4: Press $\boxed{\text{STAT PLOT}}$ $\boxed{\text{A}}$ **(PLOT1)** $\boxed{\text{ENTER}}$ to access the PLOT1 set up screen. To turn PLOT 1 on, press $\boxed{\text{ENTER}}$. Press $\boxed{\blacktriangledown}$ $\boxed{\blacktriangleright}$ $\boxed{\text{ENTER}}$ to set the data to two-variable. Set L1 for the *x* variable by pressing $\boxed{\blacktriangledown}$ $\boxed{\text{2ndF}}$ $\boxed{\text{LIST}}$ $\boxed{\text{A}}$ $\boxed{1}$ $\boxed{\text{ENTER}}$. Press $\boxed{\text{2ndF}}$ $\boxed{\text{LIST}}$ $\boxed{2}$ $\boxed{\text{ENTER}}$ to set L2 for the y variable. To set the graph to scatter diagram, press $\boxed{\text{STAT PLOT}}$ $\boxed{\text{G}}$ **(S.D.)** and $\boxed{3}$ **(Scattr ☐).**

STEP 5: Construct an autoscaled scatter diagram of this data set by pressing $\boxed{\text{ZOOM}}$ $\boxed{\text{A}}$ **(ZOOM)** $\boxed{9}$ **(Stat).**

Press $\boxed{\text{TRACE}}$ and press $\boxed{\blacktriangleright}$ repeatedly to verify that Xmin= 1, Xmax= 7, Ymin= 48.63, and Ymax= 52.03.

Basic Keyboard/GENERAL MATHEMATICS USING THE SHARP EL-9900

LINEAR REGRESSIONS

Steps for calculating the best-fitting line

STEP 1: Turn the calculator on and press $\boxed{\text{STAT}}$ to enter the statistics menu.
Access the data entry screen by pressing $\boxed{\text{A}}$ **(EDIT)** $\boxed{\text{ENTER}}$.
Delete old data and enter the following data set:

X	Y
25	32
28	33
31	27
40	38
29	30

Check the data you have entered and correct any errors you may find.

STEP 2: To find the best-fitting line (regression line) for the data, press $\boxed{\boxplus\boxminus}$ $\boxed{\text{STAT}}$
$\boxed{\text{D}}$ **(REG)** $\boxed{0}$ $\boxed{2}$ **(Rg_ax+b)** and press $\boxed{\text{ENTER}}$.

STEP 3: To overlay the regression line and the scatter diagram for the data, you must first set up the scatter diagram by pressing $\boxed{\text{STAT PLOT}}$ $\boxed{\text{A}}$ **(PLOT1)**
$\boxed{\text{ENTER}}$ $\boxed{\text{ENTER}}$ $\boxed{\blacktriangledown}$ $\boxed{\blacktriangleright}$ $\boxed{\text{ENTER}}$ $\boxed{\blacktriangledown}$ $\boxed{\text{2ndF}}$ $\boxed{\text{LIST}}$ $\boxed{\text{A}}$ $\boxed{1}$ $\boxed{\text{ENTER}}$ $\boxed{\text{2ndF}}$
$\boxed{\text{LIST}}$ $\boxed{2}$ $\boxed{\text{ENTER}}$ $\boxed{\text{STAT PLOT}}$ $\boxed{\text{G}}$ **(S.D.)** and $\boxed{3}$ **(Scattr □)**.

STEP 4: Display the scatter diagram for the data by pressing $\boxed{\text{WINDOW}}$ and setting
Xmin = 20, Xmax = 45, Xscl = 5, Ymin = 25, Ymax = 40, and Yscl = 5. Press
$\boxed{\text{GRAPH}}$ to view the scatter diagram.

STEP 5: To view the overlay of the regression line and the scatter diagram, press
$\boxed{\text{Y=}}$ $\boxed{\text{CL}}$ $\boxed{\text{2ndF}}$ $\boxed{\text{VARS}}$ $\boxed{\text{H}}$ **(STAT)** $\boxed{\text{ENTER}}$ $\boxed{\text{B}}$ **(REGEQN)** $\boxed{1}$ **(RegEqn)**
$\boxed{\text{GRAPH}}$.

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