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SHARP

User-Guide Book

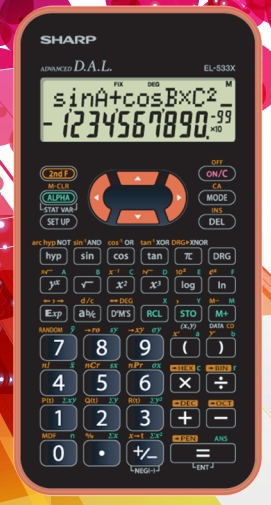
with past years examination examples

Scientific & Statistics Calculator

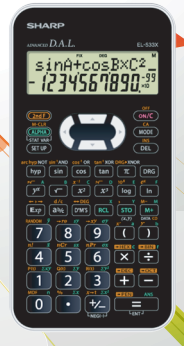
EL-533X

Suitable for KBSM Syllabus

EL-533XGR



EL-533XYR



EL-533XWH

Scientific & Statistics Calculator
EL - 533X

ADVANCED D.A.L

280 functions

Upper: 12-Digit
Lower: 10 + 2-Digit

Multi-Line Playback

2-Line 2-Line Display

with Hard Case

LARGE DISPLAY

Long-Life Plastic Buttons

Green EL-533XGR

White EL-533XWH

Orange EL-533XYR

Financial Calculator
EL - 738FB

- Compound interest calculation
- Bond calculation
- Constant/chain calculations
- Power source: CR2032 x 1
- Dimensions :
  77 (W) x 144 (H) x 10.8 (D) mm
- Weight: Approx. 82.5g (excluding hard case)

Upper: 12-Digit
Lower: 10+2-Digit

Last Answer

D.A.L.

A+B=C
√C=D

a ÷K =X
b ÷K =Y
c ÷K =Z

DAY/DATE

RESUME

3-DIGIT PUNCTUATION

2-KEY ROLL-OVER

Hard Case

Cost Sell Margin

P

Scientific Calculator
EL - 506XWH

469 functions

Last Answer

Upper: 12-Digit
Lower: 10+2-Digit

∫ dX

D.A.L.

2-Line

A+B=C
√C=D

■→F1 ■→F3
■→F2 ■→F4

3-DIGIT PUNCTUATION

P

a ÷K =X
b ÷K =Y
c ÷K =Z

d/dX

2-KEY ROLL-OVER

Office Calculator
EL - 123NBK

- Power source: Twin power (Solar cell & LR44 x 1)
- Dimensions:
  111.9 (W) x 176 (H) x 26.3 (D) mm
- Weight: Approx. 144.5 g

12-Digit
Slant Display

LARGE DISPLAY

GT FUNCTION

3-DIGIT PUNCTUATION

MU

2-KEY ROLL-OVER

P

This booklet serves as a supplementary tool to expedite your mastery in using the SHARP scientific calculator EL-533X. It is in no way a replacement to the operation guide that comes together with the calculator.

This booklet is intended for beginners from Form 1 up till Form 5 who are attempting topics in the PT1 Mathematics and SPM Mathematics and Additional Mathematics.

Worked examples of which most are taken from past years Question Bank, are provided systematically according to the syllabus.

About the author…

Theresa Chiew holds a Bachelor and Master Degree, both in Mathematics. She has over 20 years of experience teaching Mathematics to students at various levels; secondary schools, A-Levels and undergraduates.
She is currently a Senior Lecturer at a University College.

Topics in Form 1 – 3

Topics in Form 4 – 5 (Mathematics)

Topics in Form 4 – 5 (Additional Mathematics)

Important Buttons

2nd F

To activate functions in ORANGE

MODE

To set required mode.

MODE	0

To return to Normal mode.

MODE	1	0

To select single variable statistics mode.

2nd F	π

To select DEG, RAD or GRAD.

MODE	2	2

To solve roots of quadratic equations

Form 1 - 3

Example 1:

Calculate : 136 + 400 ÷ 16 X 4

PRESS

1	3	6	+	4	0	0	÷	1	6	X	4	=

Ans: 236

Example 2:

Evaluate : 5 X (18 + 14) ÷ 40

PRESS

5	X	(	1	8	+	1	4	)	÷	4	0	=

Ans: 4

Note: This operation can also be performed without pressing the X key.

5	(	1	8	+	1	4	)	÷	4	0	=

Example 1:

Evaluate : $3\frac{2}{5} + 1\frac{5}{6} - \frac{1}{5}$

PRESS

3	a b/c	2	a b/c	5	+	1	a b/c	5	a b/c	6	-	1	a b/c	5	=

Ans: $5\frac{1}{30}$

To express the answer $5\frac{1}{30}$ in improper fraction and decimal form

PRESS

2nd F	a b/c

Ans: $\frac{151}{30}$

PRESS

a b/c

Ans: 5.033333333

Example 2:

Solve : $(7\frac{1}{2} - 3\frac{2}{3}) \times \frac{12}{69}$

PRESS

(	7	a b/c	1	a b/c	2	-	3	a b/c	2	a b/c	3	)	X	12

ab/c	6	9	=

Ans: $\frac{2}{3}$

To express the answer $\frac{2}{3}$ in decimal form

PRESS

a b/c

Ans: 0.666666666

To express back to fraction

PRESS

a b/c

Ans: $\frac{2}{3}$

Example 1:

Calculate : 3.16 X 0.4 – (- 2 $\frac{2}{3}$)

PRESS

3	.	1	6	X	.	4	-	(	+/-	2	a b/c	2	a b/c	3

)	=

Ans: 3.930666667

To express the answer correct to two decimal places

PRESS

SET UP	0	2

Ans: 3.93

To return to normal mode

PRESS

SET UP	3

Example 2:

Calculate : 2.64 ÷ 0.3 + (- 1) and express the answer correct to two decimal place.

PRESS

2	.	6	4	÷	.	3	+	(	+/-	1	a b/c	1	a b/c	8	)	=

and

PRESS

SET UP	0	2

Ans: 7.68

Example 3:

Calculate : $\frac{0.87}{87}$ X $\frac{3.38}{33.8}$

PRESS

.	8	7	÷	8	7	X	3	.	3	8	÷	3	3	.	8	=

Ans: 0.001

Example 1:

On Sunday, the water level in a tank was 2.1m. On Monday, the water level dropped by 50%. On Tuesday, the water level increased by 30% of the level on Monday. What was the water level on Tuesday?

PRESS

2	.	1	-	5	0	2ndF	.	+	3	0	2nd F	.

Ans: 1.365 m
Note: Do Not PRESS =

Example 2:

Kok Yong received a 4½ % commission for selling a car. If he sold a car for RM89 000, how much commission did he earn?

PRESS

8	9	0	0	0	X	4	.	5	2nd F	.

Ans: RM4 005

Example 1:

Evaluate $\left(\frac{9}{13}\right)^2$

PRESS

9	a b/c	1	3	x^2	=

Ans: $\frac{81}{169}$

Example 2:

Calculate $\sqrt{3} \times \sqrt{27}$

PRESS

$\sqrt{}$	3	X	$\sqrt{}$	2	7	=

Ans: 9

Example 3:

Calculate the value of $\sqrt{\frac{144}{36}}$

PRESS

$\sqrt{}$	1	4	4	a b/c	3	6	=

Ans: 2

Example 4:

Find the value of $(-1\frac{1}{3})^3$

PRESS

+/-	1	a b/c	1	a b/c	3	x^3	=

Ans: $-2\frac{10}{27}$ or $-\frac{64}{27}$

Example 5:

Calculate the value of $\sqrt[3]{-4\frac{17}{27}}$

PRESS

2nd F	x^3	+/-	4	a b/c	1	7	a b/c	2	7	=

Ans: $-1\frac{2}{3}$ or $-\frac{5}{3}$

Example 6:

Find the value of $\left(-\frac{3}{8} \div \sqrt[3]{\frac{1}{64}}\right)^2$

PRESS

(	+/-	3	a b/c	8	÷	2nd F	x^3	1	a b/c	6	4

)	x^2	=

Ans: $\mathbf{2\frac{1}{4}}$

Example 1:

Find the mean of the following sets of data items:
-5 , -2 , -1 , 5 , 6 , 9

To select single variable statistics mode
PRESS

MODE	1	0

To input data
PRESS

+/-	5	M+

+/-	2	M+

+/-	1	M+

5	M+

6	M+

9	M+

To calculate mean
PRESS

RCL	4

Ans: 2

To view data input	**PRESS**	▲ or ▼
To edit data	**PRESS**	new value then M+
To delete data	**PRESS**	2nd F then M+
To add data	**PRESS**	new value then M+

Example 2:
The table shows the quiz marks for a group of students.
Calculate the mean.

Mark	15	20	25	30	35
Frequency	2	4	3	10	1

To select single variable statistics mode
PRESS

MODE	1	0

To input data
PRESS

1	5	2nd F	STO	2	M+

2	0	2nd F	STO	4	M+

2	5	2nd F	STO	3	M+

3	0	2nd F	STO	1	0	M+

3	5	2nd F	STO	1	M+

To find the mean
PRESS

RCL	4

Ans: 26

Example 1:

Find the value of $16^{\frac{3}{2}} \div 8^{-\frac{2}{3}} \times 4^{-2}$

PRESS

1	6	y^x	3	a b/c	2	÷	8	y^x	+/-	2	a b/c

3	X	4	y^x	+/-	2	=

Ans: 16

Example 2:

Find the value of $(4^{\frac{1}{3}})^{-3} \times (2^3)^{\frac{1}{2}}$

PRESS

(	4	y^x	1	a b/c	3	)	y^x	+/-	3	X	(	2

y^x	3	)	y^x	1	a b/c	2	=

Ans: 0.707106781 or of course $\frac{1}{\sqrt{2}}$ if done manually.

Example 3:

Find the value of $\dfrac{2^{-6}}{(4^{-2})^{\frac{1}{4}} X (8^{-1})^{2}}$

PRESS

(	4	y^x	+/-	2	)	y^x	1	a b/c	4	X	(

8	y^x	+/-	1	)	x^2	=	2nd F	x^2	=	X	2

y^x	+/-	6	=

Ans: 2

Example 4:

Evaluate $\dfrac{5^{\frac{1}{2}} X 20^{\frac{1}{2}}}{4^{\frac{3}{2}}}$

PRESS

4	y^x	3	a b/c	2	=	2nd F	x^2	X	(	5	y^x

1	a b/c	2	X	2	0	y^x	1	a b/c	2	)	=

Ans: 1.25 or 1 $\frac{1}{4}$

Check first that the calculator is in DEGREE Mode.

Example 1:

Convert a) 64.8° to degrees and minutes.
b) 35°42’ to degrees.

a) **PRESS**

6	4	.	8	2nd F	D°M’S

Ans: 64°48’

b) **PRESS**

3	5	D°M’S	4	2	2nd F	D°M’S

Ans: 35.7°

Example 2:

Find the values of
a) sin 9.23°
b) cos 30°28'
c) θ if sin θ = 0.3836
d) θ if tan θ = 2.085

a) **PRESS**

sin	9	.	2	3	=

Ans: 0.160398029

b) **PRESS**

cos	3	0	D°M'S	2	8	=

Ans: 0.861924288

c) **PRESS**

2nd F	sin	.	3	8	3	6	=

Ans: 22.55685401°

PRESS

2nd F	D°M'S

Ans: 22°33'

d) **PRESS**

2nd F	tan	2	.	0	8	5	=

Ans: 64.3768642°

Form 4 - 5
Mathematics

Example 1:

Round off the numbers to the number of significant figures indicated in brackets.

a) 99450 (2) b) 0.006308 (3)

a) PRESS

9	9	4	5	0	SET UP	1	2	=

Ans: Will be given in standard form 9.9 X 10^4.
Convert manually to 99000.

To return to normal mode

PRESS

SET UP	3

b) **PRESS**

.	0	0	6	3	0	8	SET UP	1	3	=

Ans: 6.31 X 10^{-3} converted manually to 0.00631

Example 2:

Calculate $6.28 \times 10^{-6} - 4.6 \times 10^{-7}$ and express your answer in standard form.

PRESS

6	.	2	8	Exp	+/-	6	-	4	.	6	Exp	+/-	7	=

Ans: 0.00000582

PRESS

SET UP	2	9

Ans: 5.82×10^{-6}

Example 1:

Find the roots of the quadratic equations

a) $2x^2 - 9x - 5 = 0$ b) $m^2 - 4m = 0$

a) **PRESS**

MODE	2	2

The screen

a ?

will appear

PRESS

2	=

The screen

b ?

will appear

PRESS

+/-	9	=

The screen

c ?

will appear

PRESS

+/-	5	=

Ans: X1 = 5 PRESS = X2 = - 0.5

b) **PRESS**

MODE	2	2	1	=	+/-	4	=	0	=

Ans: roots are 4 and 0

2nd F	+

Converts to decimal system.
(base 10)

2nd F	÷

Converts to binary system.
(base 2)

2nd F	=

Converts to pental system.
(base 5)

2nd F	-

Converts to octal system.
(base 8)

Example 1:

Express $5^5 + 2$ as a number in base five.

PRESS

5	y^x	5	+	2	=	2nd F	=

Ans: 100002_5

To return to decimal system

PRESS

2nd F	+

or

MODE	0

Example 2:

$110111_2 + 110011_2 =$

PRESS

2nd F	÷

1	1	0	1	1	1	+	1	1	0	0	1	1	=

Ans: 1101010_2

Example 3:

Express 8^5 as a number in base 8.

PRESS

8	y^x	5	=	2nd F	-

Ans: 100000_8

Form 4 - 5
Additional Mathematics

Example 1:

Find the value of
a) $\log_{10} 826$ b) $\log_{10} \frac{1}{8}$

a) **PRESS**

log	8	2	6	=

Ans: 2.916980047

b) **PRESS**

log	1	a b/c	8	=

Ans: -0.903089987

Example 2:

Find the value of x if $\log_{10} x = -2.612$

PRESS

2nd F	log	+/−	2	.	6	1	2	=

Ans: 0.00244343

Example 1:

Given a set of data : 9 , 6 , 7 , 11 , 13 , 9 , 8 , 15 and 12 , find

a) mean b) standard deviation c) variance
of the set of data.

PRESS

MODE	1	0

Input data

9	M+	6	M+	7	M+	1	1	M+	1	3

M+	9	M+	8	M+	1	5	M+	1	2	M+

a) **PRESS**

RCL	4

Ans: mean = 10

b) **PRESS**

RCL	6

Ans: standard deviation = 2.788866755

c) **PRESS**

RCL	6	x^2	=

Ans: variance = 7.777777778

Example 2:

Score	10	11	12	13	14	15
Number of participants	7	9	10	11	2	1

For the table above, find
a) mean b) standard deviation c) variance

PRESS

MODE	1	0

Input data

1	0	2ndF	STO	7	M+	1	1	2ndF	STO	9	M+

1	2	2ndF	STO	1	0	M+	1	3	2ndF	STO	1	1	M+

1	4	2ndF	STO	2	M+	1	5	2ndF	STO	1	M+

a) **PRESS**

RCL	4

Ans: mean = 11.875

b) **PRESS**

RCL	6

Ans: standard deviation = 1.268611446

c) **PRESS**

RCL	6	x^2	=

Ans: variance = 1.609375

Example 1:

Convert 2.4 rad to degrees and 135° to radians.

PRESS

2nd F	π	2	.	4	2nd F	π	2nd F	π

Ans: 137.5098708°

PRESS

2nd F	$D^oM'S$

Ans: 137° 30'

PRESS

1	3	5	2nd F	π

Ans: 2.35619449 rad.

Example 1:

In how many different ways can 4 different books be arranged on a shelf?
[4 !]

PRESS

4	2nd F	4	=

Ans: 24

Example 2:

There are 10 contestants in a singing contest. How many possible ways are there for the first 3 places to be won by the contestants?
[$10P_3$]

PRESS

1	0	2nd F	6	3	=

Ans: 720

Example 3:

10 students are divided into three groups that consist of 5, 3 and 2 students, respectively. Find the number of ways to form the three groups.
[$10C_5$ X $5C_3$ X $2C_2$]

PRESS

1	0	2nd F	5	5	X	5	2nd F	5	3

X	2	2nd F	5	2	=

Ans: 2520

Example 1

a) Solve the pair equations

$3x + 4y = 9$
$2x + 3y = 8$

PRESS

MODE	2	0

The screen

a1?

will appear

PRESS

3	=

The screen

b1?

will appear

PRESS

4	=

The screen

c1?

will appear

PRESS

9	=

The screen

a2?

will appear

PRESS

2	=

The screen

b2?

will appear

PRESS

3	=

The screen

c2?

will appear

PRESS

8	=

Ans: X = -5 PRESS = Y= 6