



SHARP

PRODUCT CATALOGUE



SHARP

About Sharp

Since the introduction of the first Electronic desktop calculator, Sharp has led the way in the field of calculator technology.

With its advanced features, a high quality design, ground-breaking innovations and high reliability, Sharp calculators found their way into offices, schools and homes around the world. The broad portfolio includes dozens of models from handheld and desktop calculators to the printing and scientific models.

The main motto of Sharp is: „We make products that others want to imitate!”

Sharp Calculators are represented in Europe by the **MORAVIA Consulting spol. s r.o.**

MORAVIA Consulting spol. s r.o. has been operating on the market as an international distributor of calculators since 1997. It provides its partners with comprehensive service and support.





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POCKET CALCULATORS





EL-231L

› Display type	Flat
› Number of Display Digits	8 digits
› Power Source	Battery
› Battery type	AA × 1
› Automatic Power Down	✓
› Keys	Rubber
› Dimensions	115 × 69 × 21 mm
› Weight	68 g

- › Memory (3 keys)
- › Percent (%)
- › Square root ($\sqrt{}$)



EL-233S

› Display type	Flat
› Number of Display Digits	8 digits
› Power Source	Battery
› Battery type	LR54 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	103 × 60 × 8 mm
› Weight	35 g

- › Memory (3 keys)
- › Percent (%)
- › Square root ($\sqrt{}$)



EL-243S

› Display type	Flat
› Number of Display Digits	8 digits
› Power Source	Solar & Battery
› Battery type	LR54 × 1
› Automatic Power Down	✓
› Keys	Rubber
› Dimensions	105 × 64 × 11 mm
› Weight	51 g

- › Memory (3 keys)
- › Percent (%)
- › Square root ($\sqrt{}$)
- › Sign Change (+/-)



EL-240SA

› Display type	Angled
› Number of Display Digits	8 digits
› Power Source	Solar & Battery
› Battery type	LR54 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	116 × 71 × 17 mm
› Weight	58 g

- › Memory (3 keys)
- › 3-Digit Punctuation
- › Percent (%)
- › Square root ($\sqrt{}$)
- › Sign Change (+/-)
- › Decimal Setting (F, 2, 0)
- › Answer Check



EL-243E

› Display type	Flat
› Number of Display Digits	8 digits
› Power Source	Solar & Battery
› Battery type	LR54 × 1
› Automatic Power Down	✓
› Keys	Rubber
› Dimensions	105 × 64 × 11 mm
› Weight	51 g

- › Currency Conversion
- › Memory (3 keys)
- › 3-Digit Punctuation
- › Percent (%)
- › Decimal Setting (F, 2, 0)



EL-250S

› Display type	Angled
› Number of Display Digits	8 digits
› Power Source	Solar & Battery
› Battery type	LR54 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	116 × 71 × 17 mm
› Weight	58 g

- › Tax Calculation +/-
- › Memory (4 keys)
- › 3-Digit Punctuation
- › Percent (%)
- › Decimal Setting (F, 2, 0)



EL-W211GGY

› Display type	Flat
› Number of Display Digits	10 digits
› Power Source	Solar & Battery
› Battery type	CR2016 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	117 × 70 × 8 mm
› Weight	56 g

- › Tax Calculation +/-
- › Memory (3 keys)
- › 3-Digit Punctuation
- › Percent (%)



EL-379S

› Display type	Flat
› Number of Display Digits	12 digits
› Power Source	Solar & Battery
› Battery type	LR54 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	117 × 70 × 8 mm
› Weight	47 g

- › Memory (3 keys)
- › 3-Digit Punctuation
- › Percent (%)
- › Square root ($\sqrt{}$)
- › Correction Key ($\rightarrow$)



Comparison table

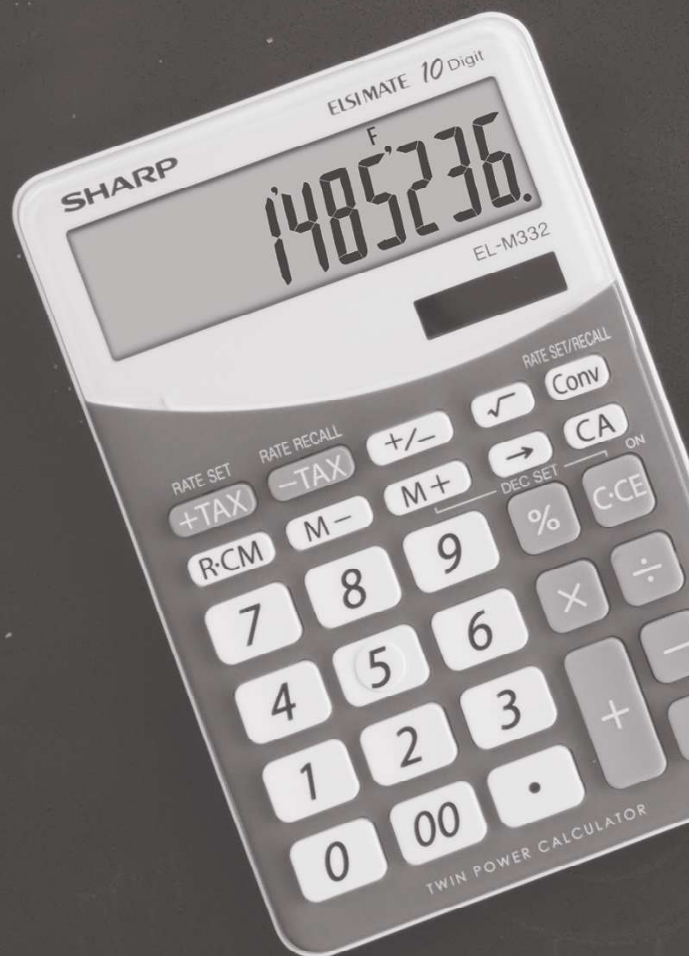
	EL-231L	EL-233S	EL-243S	EL-240SA	EL-243E
Basic Description					
Display type	Flat	Flat	Flat	Angled	Flat
Number of Display Digits	8 digits	8 digits	8 digits	8 digits	8 digits
Power Source	Battery	Battery	Solar & Battery	Solar & Battery	Solar & Battery
Battery type	AA × 1	LR54 × 1	LR54 × 1	LR54 × 1	LR54 × 1
Automatic Power Down	✓	✓	✓	✓	✓
Keys	Rubber	Plastic	Rubber	Plastic	Rubber
Protective Case	×	×	✓	×	✓
Dimensions (mm)	115 × 69 × 21	103 × 60 × 8	105 × 64 × 11	116 × 71 × 17	105 × 64 × 11
Weight (g)	68	35	51	58	51
Features					
Currency Conversion	×	×	×	×	✓
Cost / Sell / Margin	×	×	×	×	×
Tax Calculation +/-	×	×	×	×	×
Memory	3 keys	3 keys	3 keys	3 keys	3 keys
Double Zero Key (00)	×	×	×	×	×
3-Digit Punctuation	×	×	×	✓	✓
Percent (%)	✓	✓	✓	✓	✓
Square root ($\sqrt{}$)	✓	✓	✓	✓	×
Sign Change (+/-)	×	×	✓	✓	×
Correction Key (→)	×	×	×	×	×
Decimal Setting	×	×	×	F, 2, 0	F, 2, 0
Answer Check	×	×	×	✓	×

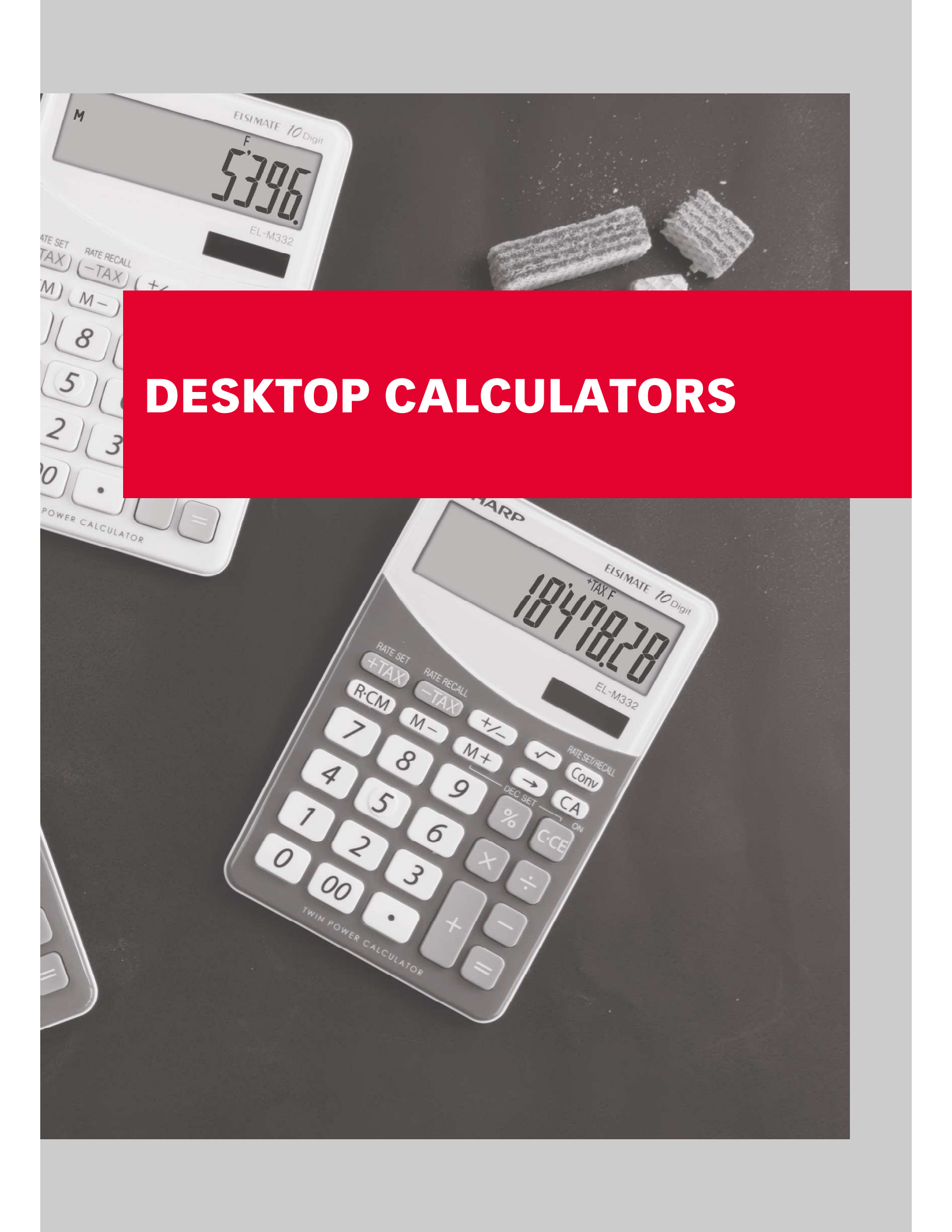
You can find the respective color and packaging variants for each model on our website www.sharp-calculators.com



	EL-250S	EL-W211GGY	EL-379S
Basic Description			
Display type	Angled	Flat	Flat
Number of Display Digits	8 digits	10 digits	12 digits
Power Source	Solar & Battery	Solar & Battery	Solar & Battery
Battery type	LR54 × 1	CR2016 × 1	LR54 × 1
Automatic Power Down	✓	✓	✓
Keys	Plastic	Plastic	Plastic
Protective Case	×	×	×
Dimensions (mm)	116 × 71 × 17	117 × 70 × 8	117 × 70 × 8
Weight (g)	58	56	47
Features			
Currency Conversion	×	×	×
Cost / Sell / Margin	×	×	×
Tax Calculation +/-	✓	✓	×
Memory	4 keys	3 keys	3 keys
Double Zero Key (00)	×	×	×
3-Digit Punctuation	✓	✓	✓
Percent (%)	✓	✓	✓
Square root (√)	×	×	✓
Sign Change (+/-)	×	×	×
Correction Key (→)	×	×	✓
Decimal Setting	F, 2, 0	×	×
Answer Check	×	×	×

You can find the respective color and packaging variants for each model on our website www.sharp-calculators.com





DESKTOP CALCULATORS



EL-310AN

› Display type	Angled
› Number of Display Digits	8 digits
› Power Source	Solar & Battery
› Battery type	LR54 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	125 × 77 × 10 mm
› Weight	75 g

› Memory (4 keys)
› 3-Digit Punctuation
› Percent (%)
› Square root ($\sqrt{}$)
› Sign Change (+/-)



EL-760R

› Display type	Flat
› Number of Display Digits	8 digits
› Power Source	Solar & Battery
› Battery type	LR54 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	120 × 76 × 23 mm
› Weight	70 g

› Tax Calculation +/-
› Memory (3 keys)
› 3-Digit Punctuation
› Percent (%)
› Square root ($\sqrt{}$)
› Sign Change (+/-)



EL-310W

› Display type	Angled
› Number of Display Digits	8 digits
› Power Source	Solar & Battery
› Battery type	LR44 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	122 × 85 × 26 mm
› Weight	90 g

› Tax Calculation +/-
› Memory (4 keys)
› Double Zero Key (00)
› 3-Digit Punctuation
› Percent (%)
› Square root ($\sqrt{}$)
› Sign Change (+/-)
› Correction Key (→)



EL-330ER

› Display type	Angled
› Number of Display Digits	8 digits
› Power Source	Solar & Battery
› Battery type	LR44 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	148 × 102 × 15 mm
› Weight	125 g

› Currency Conversion
› Tax Calculation +/-
› Memory (4 keys)
› 3-Digit Punctuation
› Percent (%)
› Sign Change (+/-)



EL-330F

› Display type	Angled	› Cost / Sell / Margin
› Number of Display Digits	8 digits	› Tax Calculation +/-
› Power Source	Solar & Battery	› Memory (3 keys)
› Battery type	LR44 × 1	› 3-Digit Punctuation
› Automatic Power Down	✓	› Percent (%)
› Keys	Plastic	› Sign Change (+/-)
› Dimensions	147 × 102 × 31 mm	
› Weight	96 g	

Smart Features:

Tax Calculation +/-

Easily calculates prices with or without taxes.

Models featuring convenient tax calculation keys save you time by simplifying complex calculations. Just press the relevant key to add or subtract predetermined tax rates at a touch.

Tax rate setting (19%)

(C-CE)	(C-CE)	0
SET		
(+TAX)	19	
SET		
(+TAX)	*	19%

Recall tax rate (19%)

(C-CE)	(C-CE)	
RECALL		
(-TAX)		19%

Calculation 1

How much is Price-plus-Tax of 800?

(C-CE)	(C-CE)	
800		800
(+TAX)		952
(+TAX)		152

Calculation 2

How much is Price-less-Tax of 175 + 241,50?

(C-CE)	(C-CE)	
175,0	+	
241,5	=	416,5
(-TAX)		350,0
(-TAX)		66,5



EL-M335

› Display type	Angled	› Currency Conversion
› Number of Display Digits	10 digits	› Tax Calculation +/-
› Power Source	Solar & Battery	› Memory (3 keys)
› Battery type	LR44 × 1	› Double Zero Key (00)
› Automatic Power Down	✓	› 3-Digit Punctuation
› Keys	Plastic	› Percent (%)
› Dimensions	149 × 100 × 27 mm	› Sign Change (+/-)
› Weight	122 g	› Correction Key (→)



Smart Features:

Currency Conversion

Some calculators are equipped with a practical function to make currency conversions using an exchange rate you enter.

Usually, the buttons used to convert currencies are labelled C1, C2 or and . The RATE SET (or simply RATE) button may be used to set the exchange rate. The exchange rate remains saved in the calculator even after it has been turned off.

To convert an amount, enter it in and press the appropriate conversion button depending on the source and target currencies.

Exchange rate setup 1.13
(€ = \$1.13)

		0
RATE SET 		
1	13	1,13

Conversion of US 100 to euros
(100\$ = ? €)

		0
100		
		88,50



EL-M332

› Display type	Angled
› Number of Display Digits	10 digits
› Power Source	Solar & Battery
› Battery type	CR2032 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	149 × 100 × 27 mm
› Weight	122 g

› Currency Conversion
› Tax Calculation +/-
› Memory (3 keys)
› Double Zero Key (00)
› 3-Digit Punctuation
› Percent (%)
› Square root (√)
› Sign Change (+/-)
› Correction Key (→)
› Decimal Setting (F, 2, 0)



EL-334F

› Display type	Flat
› Number of Display Digits	10 digits
› Power Source	Solar & Battery
› Battery type	LR44 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Kickstand	✓
› Dimensions	170 × 108 × 15 mm
› Weight	160 g

› Tax Calculation +/-
› Memory (4 keys)
› Double Zero Key (00)
› 3-Digit Punctuation
› Percent (%)
› Sign Change (+/-)
› Correction Key (→)
› Grand Total (GT)



EL-M711GGY

› Display type	Angled
› Number of Display Digits	10 digits
› Power Source	Solar & Battery
› Battery type	LR44 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	152 × 100 × 33 mm
› Weight	130 g

› Currency Conversion
› Tax Calculation (+/-)
› Memory (3 keys)
› Double Zero Key (00)
› 3-Digit Punctuation
› Percent (%)
› Sign Change (+/-)



EL-331ER

› Display type	Angled
› Number of Display Digits	10 digits
› Power Source	Solar & Battery
› Battery type	LR44 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	148 × 102 × 15 mm
› Weight	125 g

› Currency Conversion
› Tax Calculation (+/-)
› Memory (4 keys)
› 3-Digit Punctuation
› Percent (%)
› Sign Change (+/-)



EL-331W

› Display type	Tilt Adjustable
› Number of Display Digits	10 digits
› Power Source	Solar & Battery
› Battery type	CR2032 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	170 × 110 × 12 mm
› Weight	147 g

› Tax Calculation (+/-)
› Memory (4 keys)
› Double Zero Key (00)
› 3-Digit Punctuation
› Percent (%)
› Sign Change (+/-)
› Correction Key (→)
› Grand Total (GT)



EL-320W

› Display type	Tilt Adjustable
› Number of Display Digits	12 digits
› Power Source	Solar & Battery
› Battery type	CR2032 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	167 × 96 × 16 mm
› Weight	116 g

› Tax Calculation (+/-)
› Memory (3 keys)
› Double Zero Key (00)
› 3-Digit Punctuation
› Percent (%)
› Correction Key (→)
› Decimal Setting (F, 2, 0)



EL-124T

› Display type	Angled
› Number of Display Digits	12 digits
› Power Source	Solar & Battery
› Battery type	LR44 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	152 × 96 × 12 mm
› Weight	105 g

› Tax Calculation +/-
› Memory (4 keys)
› Double Zero Key (00)
› 3-Digit Punctuation
› Percent (%)
› Square root ($\sqrt{}$)
› Sign Change (+/-)
› Correction Key (→)
› Grand Total (GT)



EL-125T

› Display type	Angled
› Number of Display Digits	12 digits
› Power Source	Solar & Battery
› Battery type	LR44 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	176 × 112 × 13 mm
› Weight	125 g

› Tax Calculation +/-
› Memory (4 keys)
› Double Zero Key (00)
› 3-Digit Punctuation
› Percent (%)
› Square root ($\sqrt{}$)
› Sign Change (+/-)
› Correction Key (→)
› Grand Total (GT)



EL-334W

› Display type	Flat
› Number of Display Digits	12 digits
› Power Source	Solar & Battery
› Battery type	LR44 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Kickstand	✓
› Dimensions	170 × 112 × 14 mm
› Weight	159 g

› Cost / Sell / Margin
› Tax Calculation +/-
› Memory (4 keys)
› Double Zero Key (00)
› 3-Digit Punctuation
› Percent (%)
› Sign Change (+/-)
› Correction Key (→)
› Grand Total (GT)



EL-340W

› Display type	Tilt Adjustable
› Number of Display Digits	12 digits
› Power Source	Solar & Battery
› Battery type	CR2032 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	185 × 127 × 17 mm
› Weight	199 g
› 3-Digit Punctuation	✓
› Memory	4 keys

› Tax Calculation +/-
› Double Zero Key (00)
› Percent (%)
› Square root ($\sqrt{}$)
› Sign Change (+/-)
› Correction Key (→)
› Grand Total (GT)
› Mark-up / -down (MU)
› Decimal Setting (F, 3, 2, 0, A)
› Round Up / Round Down



EL-CC12D

› Display type	Angled	› Tax Calculation +/-
› Number of Display Digits	12 digits	› Memory (3 keys)
› Power Source	Solar & Battery	› Double Zero Key (00)
› Battery type	LR44 × 1	› 3-Digit Punctuation
› Automatic Power Down	✓	› Percent (%)
› Keys	Plastic	› Sign Change (+/-)
› Dimensions	166 × 132 × 30 mm	› Correction Key (→)
› Weight	169 g	› Grand Total (GT)
		› Mark-up / -down (MU)
		› Resume Function
		› Check & Correct Function (300 steps)



EL-CC12GP

› Display type	Angled	› Tax Calculation +/-
› Number of Display Digits	12 digits	› Memory (3 keys)
› Power Source	Solar & Battery	› Double Zero Key (00)
› Battery type	LR44 × 1	› 3-Digit Punctuation
› Automatic Power Down	✓	› Percent (%)
› Keys	Plastic	› Sign Change (+/-)
› Dimensions	198 × 158 × 32 mm	› Correction Key (→)
› Weight	240 g	› Grand Total (GT)
		› Mark-up / -down (MU)
		› Resume Function
		› Check & Correct Function (300 steps)
		› Round Up / Round Down
		› Decimal Setting (F, 4, 3, 2, 0, A)



Smart Features:

Answer Check

An "OK" sign appears when the calculation being checked matches the result of the first.

Calculation 1

$$100 + 10\% =$$

1 0 0 + 1 0 % =
1 1 0

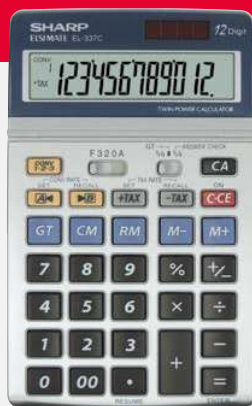
Answer 1

Calculation 2

$$10 \times 10 + 10 =$$

1 0 x 1 0 + 1 0 =
1 1 0 ok

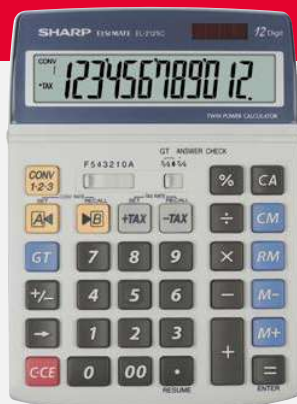
Answer 2



EL-337C

› Display type	Tilt Adjustable
› Number of Display Digits	12 digits
› Power Source	Solar & Battery
› Battery type	LR44 x 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	175 x 108 x 22 mm
› Weight	165 g
› 3-Digit Punctuation	✓
› Memory	4 keys

› Currency Conversion
› Tax Calculation +/-
› Double Zero Key (00)
› Percent (%)
› Sign Change (+/-)
› Grand Total (GT)
› Resume Function
› Answer Check
› Decimal Setting (F, 3, 2, 0, A)
› Round Up / Round Down



EL-2125C

› Display type	Tilt Adjustable
› Number of Display Digits	12 digits
› Power Source	Solar & Battery
› Battery type	LR44 x 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	195 x 140 x 23 mm
› Weight	215 g
› 3-Digit Punctuation	✓
› Memory	4 keys

› Currency Conversion
› Tax Calculation +/-
› Double Zero Key (00)
› Percent (%)
› Sign Change (+/-)
› Correction Key (→)
› Grand Total (GT)
› Resume Function
› Answer Check
› Round Up / Round Down
› Decimal Setting (F, 5, 4, 3, 2, 1, 0, A)



EL-145T

› Display type	Angled	› Tax Calculation +/-
› Number of Display Digits	14 digits	› Memory (4 keys)
› Power Source	Solar & Battery	› Double Zero Key (00)
› Battery type	LR54 × 1	› 3-Digit Punctuation
› Automatic Power Down	✓	› Percent (%)
› Keys	Plastic	› Square root (√)
› Dimensions	176 × 112 × 13 mm	› Sign Change (+/-)
› Weight	125 g	› Correction Key (→)
		› Grand Total (GT)

Smart Features:

Grand Total (GT)

The GT function allows simple and rapid calculation of the sum of all prior results.

Whenever the "=" button is pressed the current result is added to the Grand Total. Until the Grand Total is deleted by pressing the GT button twice in a row, all results are added to the sum, which can be displayed at any time by pressing GT.

Calculation

$$(2\,500 + 2\,200 + 3\,000) + (5\,000 + 1\,500 + 2\,800) = 17\,000$$

$\underbrace{\hspace{100px}}_x$
 $\underbrace{\hspace{100px}}_y$

U.S. revenues (A, B and C)

Customer A	} x	2500
Customer B		2200
Customer C		3000

Europe revenues (D, E and F)

Customer D	} y	5000
Customer E		1500
Customer F		2800

OPERATION

2500	[+]
2200	[+]
3000	[+]
	[*]
5000	[+]
1500	[+]
2800	[+]
	[*]
	[GT]

PRINT

2500
2200
3000
7700
5000
1500
2800
9300
17000



Innovative "GREEN" PAPERLESS Printing Calculators

For printing calculator users who do not need papers.
Ideal for banks, accounting, ...

Multiline scrolling LCD display

- › High speed answer
- › Check 5 lines at once

History replay

- › Correct wrong input (300 steps)

Easy-to-Read 12-digit Fluorescent display

Business functions



EL-1501

› Display type	Fluorescent / LCD
› Number of Display Digits	12 digits / 5 lines
› Power Source	Battery
› Battery type	AA × 4
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	228 × 150 × 62 mm
› Weight	490 g

› Cost / Sell / Margin
› Tax Calculation +/-
› Memory (4 keys)
› Double Zero Key (00)
› 3-Digit Punctuation
› Percent (%)
› Sign Change (+/-)
› Correction Key (→)
› Grand Total (GT)
› Item Counter
› Decimal Setting (F, 3, 2, 0, A)
› Round Up / Round Down



EL-1901

› Display type	Fluorescent / LCD
› Number of Display Digits	12 digits / 5 lines
› Power Source	AC Power Supply
› Battery type	CR2032 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	254 × 193 × 66 mm
› Weight	580 g

› Cost / Sell / Margin
› Tax Calculation +/-
› Memory (4 keys)
› Double Zero Key (00)
› 3-Digit Punctuation
› Sign Change (+/-)
› Correction Key (→)
› Grand Total (GT)
› Item Counter
› Check & Correct Function (300 steps)
› Round Up / Round Down
› Decimal Setting (F, 6, 3, 2, 1, 0, A)



Smart Features:

Check & Correct

This function allows you to browse prior calculations and make corrections of entry data wherever an error was made either by entering a wrong number or using the wrong operator. Calculators featuring this function remember up to 300 recent numbers and operations.

Correction of wrong entry data

$$300 \times 2 + 700 - 400 = 900$$

is to be replaced with:

$$300 \times 5 + 700 - 400 = 1800$$

First entry		Correction	
Entry	Display	Entry	Display
300	01 300	(CHECK) 01 300	×
(×)	02 300 ×	(CHECK) 02 2	+
2	03 2	(CORRECT) 02 2	+
(+)	04 600 +	5 02 5	+
700	05 700	(CORRECT) 02 5	+
(-)	06 1300 -	(CHECK) 03 700	-
400	07 400	(CHECK) 04 400	=
(=)	08 900 =	(CHECK) 05 1800	ANS



Comparison table

	EL-310AN	EL-760R	EL-310W	EL-330ER	EL-330F	EL-M335
Basic Description						
Display type	Angled	Flat	Angled	Angled	Angled	Angled
Number of Display Digits	8 digits	8 digits	8 digits	8 digits	8 digits	10 digits
Power Source	Solar & Battery	Solar & Battery	Solar & Battery	Solar & Battery	Solar & Battery	Solar & Battery
Battery type	LR54 × 1	LR54 × 1	LR44 × 1	LR44 × 1	LR44 × 1	LR44 × 1
Automatic Power Down	✓	✓	✓	✓	✓	✓
Keys	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic
Kickstand	×	×	×	×	×	×
Dimensions (mm)	125 × 77 × 10	120 × 76 × 23	122 × 85 × 26	148 × 102 × 15	147 × 102 × 31	149 × 100 × 27
Weight (g)	75	70	90	125	96	122
Features						
Currency Conversion	×	×	×	✓	×	✓
Cost / Sell / Margin	×	×	×	×	✓	×
Tax Calculation +/-	×	✓	✓	✓	✓	✓
Memory	4 keys	3 keys	4 keys	4 keys	3 keys	3 keys
Double Zero Key (00)	×	×	✓	×	×	✓
3-Digit Punctuation	✓	✓	✓	✓	✓	✓
Percent (%)	✓	✓	✓	✓	✓	✓
Square root ($\sqrt{}$)	✓	✓	✓	×	×	×
Sign Change (+/-)	✓	✓	✓	✓	✓	✓
Correction Key (→)	×	×	✓	×	×	✓
Grand Total (GT)	×	×	×	×	×	×
Item Counter	×	×	×	×	×	×
Mark-up / -down (MU)	×	×	×	×	×	×
Day / Date Calculation	×	×	×	×	×	×
Resume Function	×	×	×	×	×	×
Decimal Setting	×	×	×	×	×	×
Round Up / Round Down	×	×	×	×	×	×
Answer Check	×	×	×	×	×	×
Check & Correct Function	×	×	×	×	×	×

You can find the respective color and packaging variants for each model on our website www.sharp-calculators.com



	EL-M332	EL-334F	EL-M711GGY	EL-331ER	EL-331W	EL-320W
Basic Description						
Display type	Angled	Flat	Angled	Angled	Tilt Adjustable	Tilt Adjustable
Number of Display Digits	10 digits	10 digits	10 digits	10 digits	10 digits	12 digits
Power Source	Solar & Battery	Solar & Battery	Solar & Battery	Solar & Battery	Solar & Battery	Solar & Battery
Battery type	CR2032 × 1	LR44 × 1	LR44 × 1	LR44 × 1	CR2032 × 1	CR2032 × 1
Automatic Power Down	✓	✓	✓	✓	✓	✓
Keys	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic
Kickstand	×	✓	×	×	×	×
Dimensions (mm)	149 × 100 × 27	170 × 108 × 15	152 × 100 × 33	148 × 102 × 15	170 × 110 × 12	167 × 96 × 16
Weight (g)	122	160	130	125	147	116
Features						
Currency Conversion	✓	×	✓	✓	×	×
Cost / Sell / Margin	×	×	×	×	×	×
Tax Calculation +/-	✓	✓	✓	✓	✓	✓
Memory	3 keys	4 keys	3 keys	4 keys	4 keys	3 keys
Double Zero Key (00)	✓	✓	✓	×	✓	✓
3-Digit Punctuation	✓	✓	✓	✓	✓	✓
Percent (%)	✓	✓	✓	✓	✓	✓
Square root ($\sqrt{}$)	✓	×	×	×	×	×
Sign Change (+/-)	✓	✓	✓	✓	✓	×
Correction Key (→)	✓	✓	×	×	✓	✓
Grand Total (GT)	×	✓	×	×	✓	×
Item Counter	×	×	×	×	×	×
Mark-up / -down (MU)	×	×	×	×	×	×
Day / Date Calculation	×	×	×	×	×	×
Resume Function	×	×	×	×	×	×
Decimal Setting	F, 2, 0	×	×	×	×	F, 2, 0
Round Up / Round Down	×	×	×	×	×	×
Answer Check	×	×	×	×	×	×
Check & Correct Function	×	×	×	×	×	×

You can find the respective color and packaging variants for each model on our website www.sharp-calculators.com



Comparison table

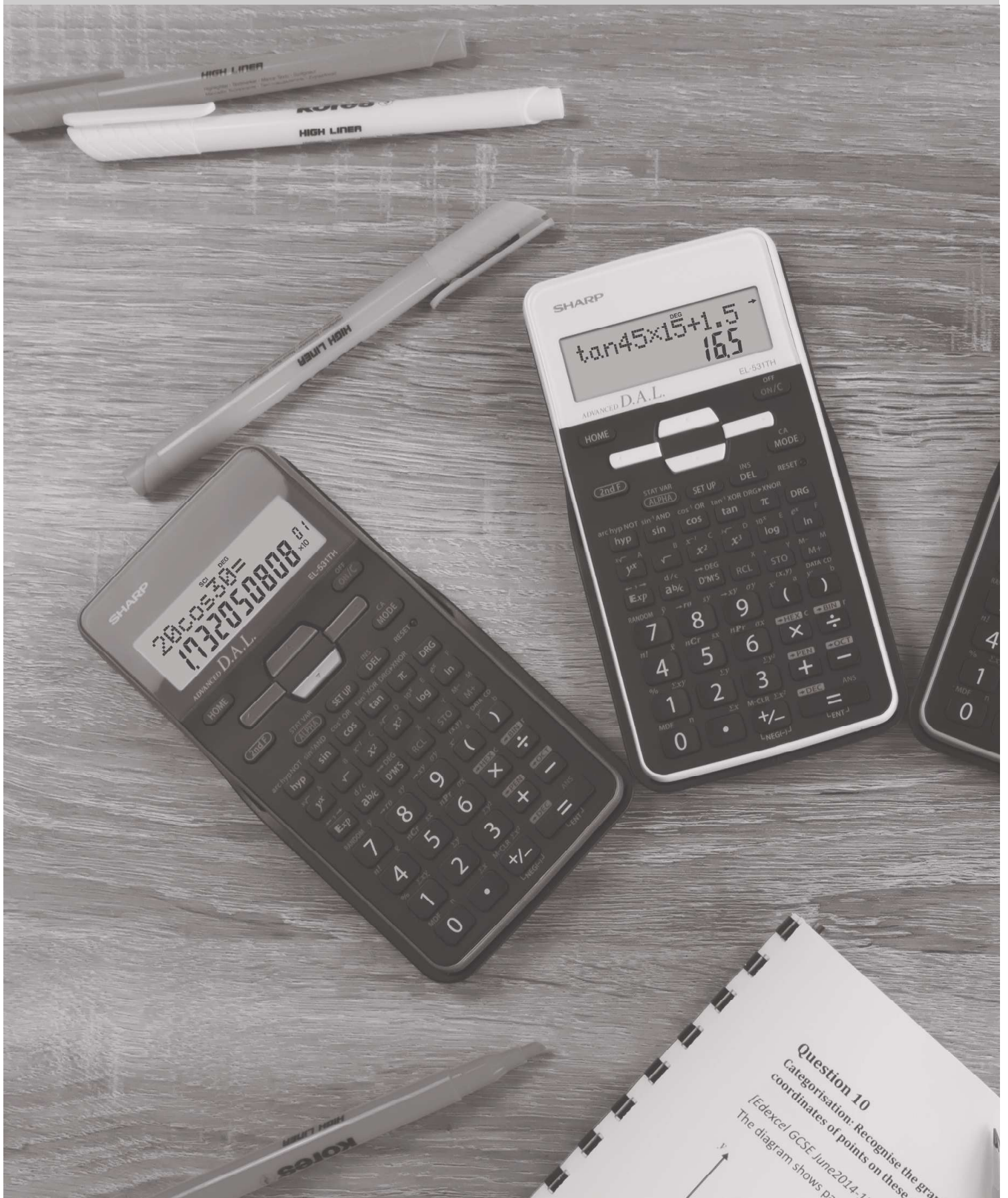
	EL-124T	EL-125T	EL-334W	EL-340W	EL-CC12D	EL-CC12GP
Basic Description						
Display type	Angled	Angled	Flat	Tilt Adjustable	Angled	Angled
Number of Display Digits	12 digits	12 digits	12 digits	12 digits	12 digits	12 digits
Power Source	Solar & Battery	Solar & Battery	Solar & Battery	Solar & Battery	Solar & Battery	Solar & Battery
Battery type	LR44 × 1	LR44 × 1	LR44 × 1	CR2032 × 1	LR44 × 1	LR44 × 1
Automatic Power Down	✓	✓	✓	✓	✓	✓
Keys	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic
Kickstand	×	×	✓	×	×	×
Dimensions (mm)	152 × 96 × 12	176 × 112 × 13	170 × 112 × 14	185 × 127 × 17	132 × 166 × 30	158 × 198 × 32
Weight (g)	105	125	159	199	169	240
Features						
Currency Conversion	×	×	×	×	×	×
Cost / Sell / Margin	×	×	✓	×	×	×
Tax Calculation +/-	✓	✓	✓	✓	✓	✓
Memory	4 keys	4 keys	4 keys	4 keys	3 keys	3 keys
Double Zero Key (00)	✓	✓	✓	✓	✓	✓
3-Digit Punctuation	✓	✓	✓	✓	✓	✓
Percent (%)	✓	✓	✓	✓	✓	✓
Square root ($\sqrt{}$)	✓	✓	×	✓	×	×
Sign Change (+/-)	✓	✓	✓	✓	✓	✓
Correction Key (→)	✓	✓	✓	✓	✓	✓
Grand Total (GT)	✓	✓	✓	✓	✓	✓
Item Counter	×	×	×	×	×	×
Mark-up / -down (MU)	×	×	×	✓	✓	✓
Day / Date Calculation	×	×	×	×	×	×
Resume Function	×	×	×	×	✓	✓
Decimal Setting	×	×	×	F, 3, 2, 0, A	×	F, 4, 3, 2, 0, A
Round Up / Round Down	×	×	×	✓	×	✓
Answer Check	×	×	×	×	×	×
Check & Correct Function	×	×	×	×	✓	✓

You can find the respective color and packaging variants for each model on our website www.sharp-calculators.com



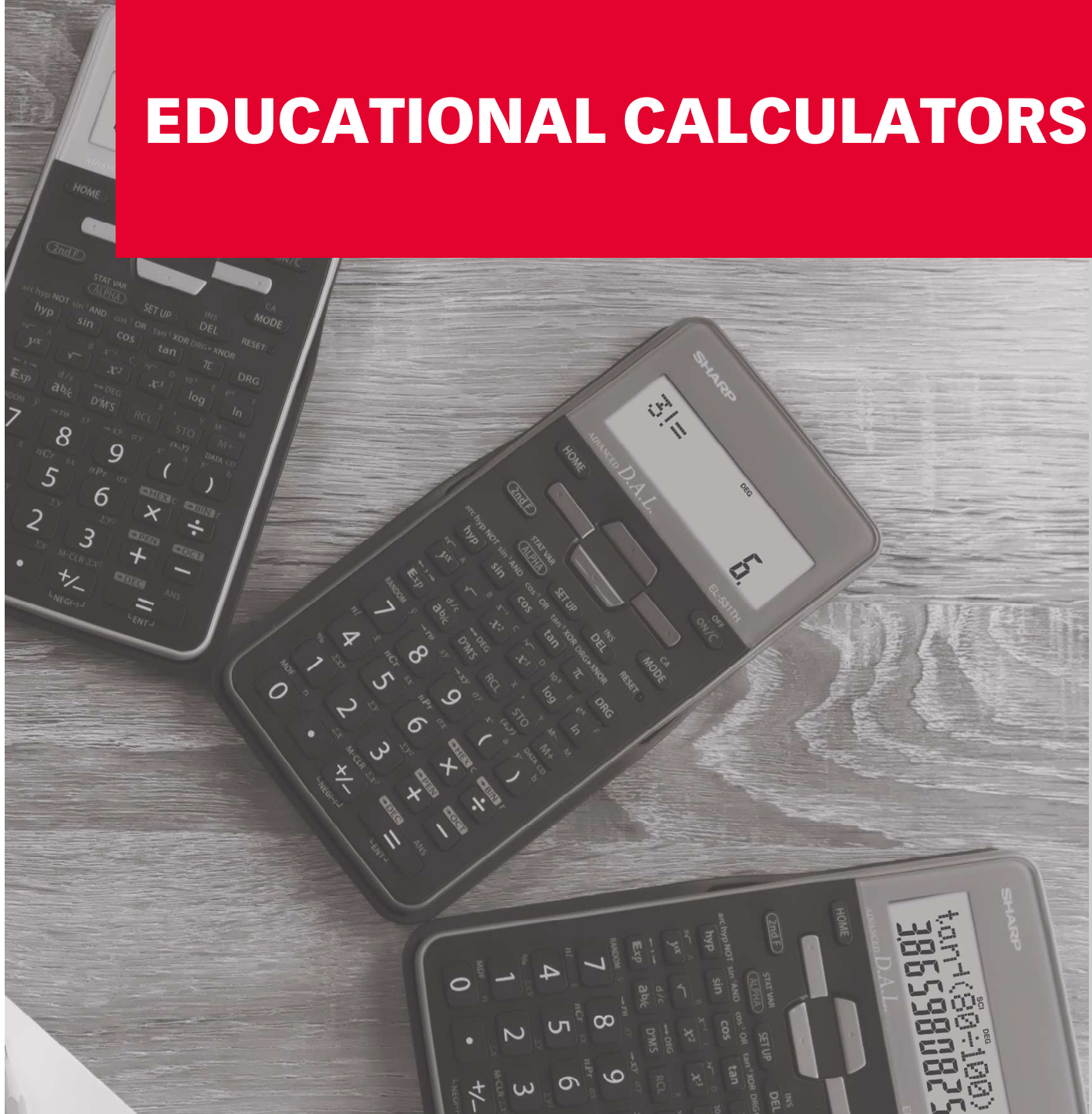
	EL-337C	EL-2125C	EL-145T	EL-1501	EL-1901
Basic Description					
Display type	Tilt Adjustable	Tilt Adjustable	Angled	Fluorescent / LCD	Fluorescent / LCD
Number of Display Digits	12 digits	12 digits	14 digits	12 digits / 5 lines	12 digits / 5 lines
Power Source	Solar & Battery	Solar & Battery	Solar & Battery	Battery	AC Power Supply
Battery type	LR44 × 1	LR44 × 1	LR54 × 1	AA × 4	CR2032 × 1 (Backup)
Automatic Power Down	✓	✓	✓	✓	✓
Keys	Plastic	Plastic	Plastic	Plastic	Plastic
Kickstand	×	×	×	×	×
Dimensions (mm)	175 × 108 × 22	195 × 140 × 23	176 × 112 × 13	228 × 150 × 62	254 × 193 × 66
Weight (g)	165	215	125	490	580
Features					
Currency Conversion	✓	✓	×	×	×
Cost / Sell / Margin	×	×	×	✓	✓
Tax Calculation +/-	✓	✓	✓	✓	✓
Memory	4 keys	4 keys	4 keys	4 keys	4 keys
Double Zero Key (00)	✓	✓	✓	✓	✓
3-Digit Punctuation	✓	✓	✓	✓	✓
Percent (%)	✓	✓	✓	✓	×
Square root ($\sqrt{}$)	×	×	✓	×	×
Sign Change (+/-)	✓	✓	✓	✓	✓
Correction Key (→)	×	✓	✓	✓	✓
Grand Total (GT)	✓	✓	✓	✓	✓
Item Counter	×	×	×	✓	✓
Mark-up / -down (MU)	×	×	×	×	×
Day / Date Calculation	×	×	×	×	×
Resume Function	✓	✓	×	×	×
Decimal Setting	F, 3, 2, 0, A	F, 5, 4, 3, 2, 1, 0, A	×	F, 3, 2, 0, A	F, 6, 3, 2, 1, 0, A
Round Up / Round Down	✓	✓	×	✓	✓
Answer Check	✓	✓	×	×	×
Check & Correct Function	×	×	×	×	✓

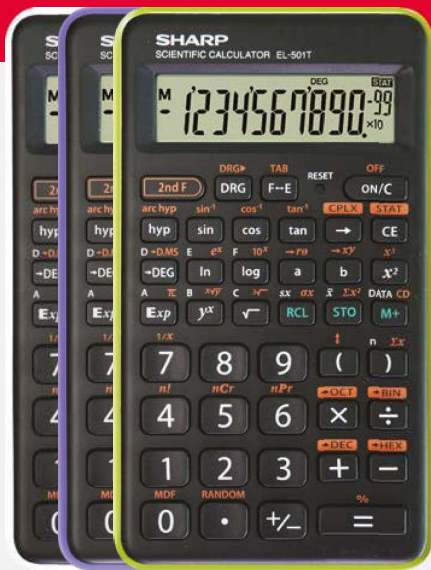
You can find the respective color and packaging variants for each model on our website www.sharp-calculators.com



Question 10
Categorisation: Recognise the coordinates of points on these
/Edexcel GCSE June2014-J
The diagram shows pa

EDUCATIONAL CALCULATORS





EL-501T

Display type	1 line	1/x, x ² , √, %, π Key
Number of Display Digits	10+2 digits	Complex Number Calculation
Power Source	Battery	FSE Display (SCI, FIX, ENG)
Battery type	LR54 × 1	1-Variable Statistics
Automatic Power Down	✓	Mean, Standard Deviation
Keys	Plastic	NCr, nPr, n!
Protective Case	✓	Random Numbers Generator
Dimensions	127 × 73 × 13 mm	DEG / RAD / GRAD Modes
Weight	68 g	sin, cos, tan and inverses
Built-In Functions	146	Hyperbolic Functions
Memory Variables	1	Sexagesimal and Decimal Conversions
		Rectangular and Polar Coordinates Conversions
		Number Systems: DEC, BIN, OCT, HEX, PEN

Smart Features:

Until the introduction of SHARP's D.A.L., keying in equations had been a complicated process making scientific calculators difficult to use.

Introduced in 1992 and an industry-first, SHARP's D.A.L. allows symbols and numbers of an equation to be entered as they are written. Instead of wasting energy on difficult calculator operations, users are free to concentrate on mathematical concepts.

Direct Algebraic Logic (D.A.L.)

D.A.L. system
key operation

sin 3 0 + cos 4 5 =

Equation

sin 30 + cos 45 =

Non D.A.L.
system key operation

3 0 sin + 4 5 cos =



EL-510RT

Display type	1 line	1/x, x ² , √, %, π Key
Number of Display Digits	10+2 digits	GCD, LCM
Power Source	Solar & Battery	Complex Number Calculation
Battery type	LR54 × 1	Multi-Line Playback
Automatic Power Down	✓	Last Answer Recall (ANS)
Keys	Rubber	1-Variable Statistics
Protective Case	✓	Random Numbers Generator
Dimensions	135 × 75 × 10 mm	DEG / RAD / GRAD Modes
Weight	66 g	sin, cos, tan and inverses
Built-In Functions	169	Hyperbolic Functions
Entry System	D.A.L.	Sexagesimal and Decimal Conversions
Memory Variables	5	Rectangular and Polar Coordinates Conversions

Smart Features:

A 2-line display allows the users to check the equation and answer at the same time. Because the equation remains on display, it is easy to edit or make substitutions if necessary.

2-Line Display

Equation

Answer

$$\sin 30 + \cos 40 = 1.266044443$$



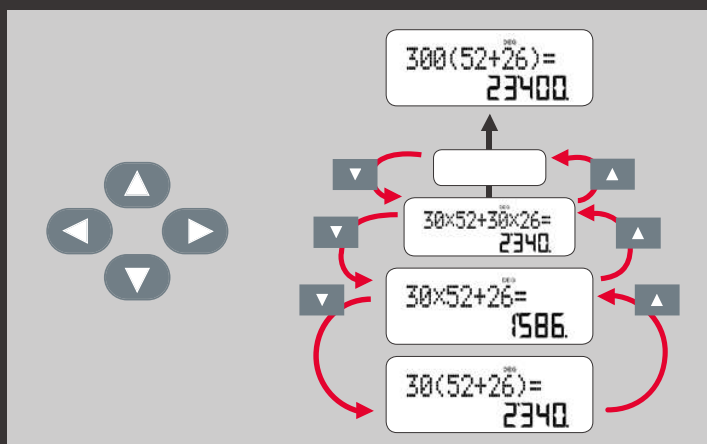
EL-531TH

› Display type	2 lines	› Multi-Line Playback
› Number of Display Digits	10+2 digits	› Last Answer Recall (ANS)
› Power Source	Battery	› FSE Display (SCI, FIX, ENG)
› Battery type	AAA × 1	› 1-Variable Statistics
› Automatic Power Down	✓	› 2-Variable Statistics
› Keys	Plastic	› Mean, Standard Deviation
› Protective Case	✓	› NCr, nPr, n!
› Dimensions	161 × 80 × 15 mm	› Random Numbers Generator
› Weight	115 g	› DEG / RAD / GRAD Modes
› Built-In Functions	273	› sin, cos, tan and inverses
› Entry System	D.A.L.	› Hyperbolic Functions
› Memory Variables	9	› Sexagesimal and Decimal Conversions
› Regression Calculations	6	› Rectangular and Polar Coordinates Conversions
› 1/x, x ² , √, %, π Key		› Number Systems: DEC, BIN, OCT, HEX, PEN
› Fractions		› Logical Operation (AND, OR, NOT, NEG, XOR)

Smart Features:

Multi-Line Playback function lets you recall any of the last 142 steps you have made. This feature is very useful for comparing formulas and recalculating equations.

Multi-Line Playback





EL-531TG

› Display type	2 lines
› Number of Display Digits	10+2 digits
› Power Source	Solar & Battery
› Battery type	LR44 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Protective Case	✓
› Dimensions	161 × 80 × 15 mm
› Weight	110 g
› Built-In Functions	273
› Entry System	D.A.L.
› Memory Variables	9
› Regression Calculations	6
› 1/x, x², √, %, π Key	
› Fractions	

› Multi-Line Playback
› Last Answer Recall (ANS)
› FSE Display (SCI, FIX, ENG)
› 1-Variable Statistics
› 2-Variable Statistics
› Mean, Standard Deviation
› NCr, nPr, n!
› Random Numbers Generator
› DEG / RAD / GRAD Modes
› sin, cos, tan and inverses
› Hyperbolic Functions
› Sexagesimal and Decimal Conversions
› Rectangular and Polar Coordinates Conversions
› Number Systems: DEC, BIN, OCT, HEX, PEN
› Logical Operation (AND, OR, NOT, NEG, XOR)



EL-520TS

› Display type	2 lines
› Number of Display Digits	10+2 digits
› Power Source	Solar & Battery
› Battery type	LR44 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Protective Case	✓
› Dimensions	161 × 80 × 15 mm
› Weight	110 g
› Built-In Functions	420
› Entry System	D.A.L.
› Memory Variables	9
› Regression Calculations	6
› 1/x, x², √, %, π Key	
› Fractions	
› Numeric Derivative and Integral	
› Complex Number Calculation	

› Multi-Line Playback
› Last Answer Recall (ANS)
› FSE Display (SCI, FIX, ENG)
› 1-Variable Statistics
› 2-Variable Statistics
› Mean, Standard Deviation
› NCr, nPr, n!
› Random Numbers Generator
› DEG / RAD / GRAD Modes
› sin, cos, tan and inverses
› Hyperbolic Functions
› Sexagesimal and Decimal Conversions
› Rectangular and Polar Coordinates Conversions
› Number Systems: DEC, BIN, OCT, HEX, PEN
› Logical Operation (AND, OR, NOT, NEG, XOR)
› Metric Conversions
› Physical Constants



EL-520TG

› Display type	2 lines
› Number of Display Digits	10+2 digits
› Power Source	Solar & Battery
› Battery type	LR44 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Protective Case	✓
› Dimensions	161 × 80 × 15 mm
› Weight	110 g
› Built-In Functions	400+
› Entry System	D.A.L.
› Memory Variables	9
› Regression Calculations	6
› 1/x, x², √, %, π Key	
› Fractions	
› Complex Number Calculation	
› Multi-Line Playback	

› Last Answer Recall (ANS)
› FSE Display (SCI, FIX, ENG)
› 1-Variable Statistics
› 2-Variable Statistics
› Mean, Standard Deviation
› NCr, nPr, n!
› Random Numbers Generator
› DEG / RAD / GRAD Modes
› sin, cos, tan and inverses
› Hyperbolic Functions
› Sexagesimal and Decimal Conversions
› Rectangular and Polar Coordinates Conversions
› Number Systems: DEC, BIN, OCT, HEX, PEN
› Logical Operation (AND, OR, NOT, NEG, XOR)
› Metric Conversions
› Physical Constants

Smart Features:

Frequently used formulas or complex equations can be stored as functions in Formula Memory. By recalling the formula, you can substitute new variables into the equation and re-calculate it without having to enter the entire sequence again.

Since you can do repeat equations, it's also convenient for simulations.

Formula Memory

The diagram illustrates the Formula Memory feature. It shows a formula $V = \frac{4}{3} \pi r^3$ being stored in memory F1. The formula is then recalled and used in a calculation: $(4.3) \pi X^3$, resulting in 4188.790205.



EL-520X

Display type	2 lines
Number of Display Digits	10+2 digits
Power Source	Solar & Battery
Battery type	LR44 x 1
Automatic Power Down	✓
Keys	Plastic
Protective Case	✓
Dimensions	158 x 80 x 14 mm
Weight	95 g
Built-In Functions	419
Entry System	D.A.L.
Memory Variables	9
Regression Calculations	6
1/x, x ² , √, %, π Key	
Fractions	
Equation Solver (Newton)	
System of Linear Equations	
Numeric Derivative and Integral	

Complex Number Calculation
Multi-Line Playback
Last Answer Recall (ANS)
FSE Display (SCI, FIX, ENG)
1-Variable Statistics
2-Variable Statistics
Mean, Standard Deviation
NCR, nPr, n!
Random Numbers Generator
DEG / RAD / GRAD Modes
sin, cos, tan and inverses
Hyperbolic Functions
Sexagesimal and Decimal Conversions
Rectangular and Polar Coordinates Conversions
Number Systems: DEC, BIN, OCT, HEX, PEN
Logical Operation (AND, OR, NOT, NEG, XOR)
Metric Conversions
Physical Constants



EL-506TS

Display type	2 lines
Number of Display Digits	10+2 digits
Power Source	Solar & Battery
Battery type	LR44 x 1
Automatic Power Down	✓
Keys	Plastic
Protective Case	✓
Dimensions	161 x 80 x 15 mm
Weight	110 g
Built-In Functions	470
Entry System	D.A.L.
Memory Variables	9
Regression Calculations	6
1/x, x ² , √, %, π Key	
Fractions	
Equation Solver (Newton)	
System of Linear Equations	
Matrix and Vector Calculations	
Numeric Derivative and Integral	

Complex Number Calculation
Multi-Line Playback
Last Answer Recall (ANS)
FSE Display (SCI, FIX, ENG)
1-Variable Statistics
2-Variable Statistics
Mean, Standard Deviation
NCR, nPr, n!
Random Numbers Generator
DEG / RAD / GRAD Modes
sin, cos, tan and inverses
Hyperbolic Functions
Sexagesimal and Decimal Conversions
Rectangular and Polar Coordinates Conversions
Number Systems: DEC, BIN, OCT, HEX, PEN
Logical Operation (AND, OR, NOT, NEG, XOR)
Metric Conversions
Physical Constants

Smart Features:

A standard scientific calculator cannot display fractions and symbols such as " $\sqrt{\quad}$ " the way they appear in a proper mathematical formula.

A WriteView calculator, however, can display fractions and symbols just as they appear in a mathematical formula.

WriteView™

Calculation: $\frac{\sqrt{2}}{3} + \frac{\sqrt{5}}{5} =$

Standard scientific calculator

$(\sqrt{2}) \div 3 + (\sqrt{5}) \div 5 =$
0.918618116

WriteView scientific calculator

$\frac{\sqrt{2}}{3} + \frac{\sqrt{5}}{5} =$
 $\frac{3\sqrt{5} + 5\sqrt{2}}{15}$



EL-W531XH

› Display type	Dot Matrix	› Multi-Line Playback
› Display Dimensions	96 x 32 dots	› Last Answer Recall (ANS)
› Power Source	Battery	› FSE Display (SCI, FIX, ENG)
› Battery type	AAA x 1	› 1-Variable Statistics
› Automatic Power Down	✓	› 2-Variable Statistics
› Keys	Plastic	› Mean, Standard Deviation
› Protective Case	✓	› NCr, nPr, n!
› Dimensions	168 x 80 x 14 mm	› Random Numbers Generator
› Weight	103 g	› DEG / RAD / GRAD Modes
› Built-In Functions	335	› sin, cos, tan and inverses
› Entry System	D.A.L.	› Hyperbolic Functions
› Memory Variables	9	› Sexagesimal and Decimal Conversions
› Regression Calculations	7	› Rectangular and Polar Coordinates Conversions
› 1/x, x ² , $\sqrt{\quad}$, %, π Key		› Number Systems: DEC, BIN, OCT, HEX, PEN
› Fractions		› Logical Operation (AND, OR, NOT, NEG, XOR)
› Training (DRILL) Function		

Smart Features:

Math training questions with positive integers are displayed randomly. It is possible to select the number of questions and operator type.

Training (DRILL) Function

Math Drill example

Select the operator type for questions (+, -, ×, ÷ or mixed)

Questions are randomly selected and will not repeat except by chance

Math Drill
Question? $\frac{1}{25}$
SELECT & [ENTER]

Q 1/25
➔ 18-16=_

Q 2/25
✓ 18-16=2
✗ 10× 8=6
➔ 10× 8=_

Current question / Total questions

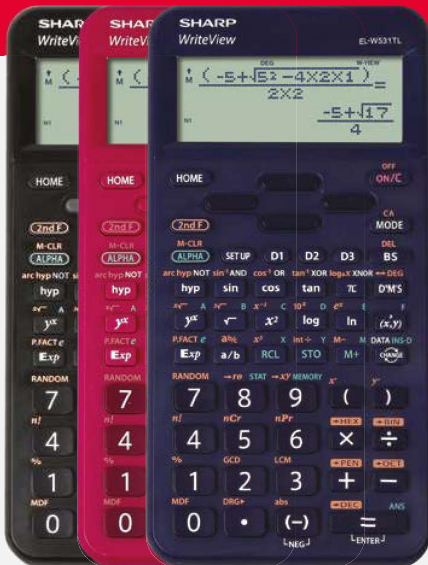
Correct answer
Wrong answer



EL-W531XG

Display type	Dot Matrix
Display Dimensions	96 × 32 dots
Power Source	Solar & Battery
Battery type	LR44 × 1
Automatic Power Down	✓
Keys	Plastic
Protective Case	✓
Dimensions	168 × 80 × 14 mm
Weight	100 g
Built-In Functions	335
Entry System	D.A.L.
Memory Variables	9
Regression Calculations	7
1/x, x ² , √, %, π Key	
Fractions	
Training (DRILL) Function	

Multi-Line Playback
Last Answer Recall (ANS)
FSE Display (SCI, FIX, ENG)
1-Variable Statistics
2-Variable Statistics
Mean, Standard Deviation
NCr, nPr, n!
Random Numbers Generator
DEG / RAD / GRAD Modes
sin, cos, tan and inverses
Hyperbolic Functions
Sexagesimal and Decimal Conversions
Rectangular and Polar Coordinates Conversions
Number Systems: DEC, BIN, OCT, HEX, PEN
Logical Operation (AND, OR, NOT, NEG, XOR)



EL-W531TL

Display type	Dot Matrix
Display Dimensions	96 × 32 dots
Power Source	Battery
Battery type	LR44 × 1
Automatic Power Down	✓
Keys	Plastic
Protective Case	✓
Dimensions	158 × 80 × 15 mm
Weight	101 g
Built-In Functions	420
Entry System	D.A.L.
Memory Variables	9
Regression Calculations	7
1/x, x ² , √, %, π Key	
GCD, LCM	
Quotient and Remainder Calculation	
Fractions	

Function Table
Training (DRILL) Function
Multi-Line Playback
Last Answer Recall (ANS)
FSE Display (SCI, FIX, ENG)
1-Variable Statistics
2-Variable Statistics
Mean, Standard Deviation
NCr, nPr, n!
Random Numbers Generator
DEG / RAD / GRAD Modes
sin, cos, tan and inverses
Hyperbolic Functions
Sexagesimal and Decimal Conversions
Rectangular and Polar Coordinates Conversions
Number Systems: DEC, BIN, OCT, HEX, PEN
Logical Operation (AND, OR, NOT, NEG, XOR)

Smart Features:

Definable Memory

Definable Memory enables you to store functions and operations in memory. With a single keystroke, you can enter functions or operations that previously required multiple keystrokes, such as [2ndF] [sinh⁻¹].

STO D1 2ndF $\overline{\text{hyp}}$ sin → Storing a function in the calculator

D1 0 . 5 = → Calculate $\sinh^{-1} * 0.5$ using the D1 key



EL-W531TH

› Display type	Dot Matrix
› Display Dimensions	96 × 32 dots
› Power Source	Battery
› Battery type	AAA × 1
› Automatic Power Down	✓
› Keys	Plastic
› Protective Case	✓
› Dimensions	166 × 80 × 15 mm
› Weight	113 g
› Built-In Functions	422
› Entry System	D.A.L.
› Memory Variables	9
› Regression Calculations	7
› 1/x, x ² , √, %, π Key	
› GCD, LCM	
› Quotient and Remainder Calculation	
› Fractions	

› Training (DRILL) Function
› Multi-Line Playback
› Last Answer Recall (ANS)
› FSE Display (SCI, FIX, ENG)
› 1-Variable Statistics
› 2-Variable Statistics
› Mean, Standard Deviation
› NCr, nPr, n!
› Random Numbers Generator
› DEG / RAD / GRAD Modes
› sin, cos, tan and inverses
› Hyperbolic Functions
› Sexagesimal and Decimal Conversions
› Rectangular and Polar Coordinates Conversions
› Number Systems: DEC, BIN, OCT, HEX, PEN
› Logical Operation (AND, OR, NOT, NEG, XOR)



EL-W531TG

› Display type	Dot Matrix
› Display Dimensions	96 × 32 dots
› Power Source	Solar & Battery
› Battery type	LR44 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Protective Case	✓
› Dimensions	166 × 80 × 15 mm
› Weight	108 g
› Built-In Functions	422
› Entry System	D.A.L.
› Memory Variables	9
› Regression Calculations	7
› 1/x, x ² , √, %, π Key	
› GCD, LCM	
› Quotient and Remainder Calculation	
› Fractions	

› Training (DRILL) Function
› Multi-Line Playback
› Last Answer Recall (ANS)
› FSE Display (SCI, FIX, ENG)
› 1-Variable Statistics
› 2-Variable Statistics
› Mean, Standard Deviation
› NCr, nPr, n!
› Random Numbers Generator
› DEG / RAD / GRAD Modes
› sin, cos, tan and inverses
› Hyperbolic Functions
› Sexagesimal and Decimal Conversions
› Rectangular and Polar Coordinates Conversions
› Number Systems: DEC, BIN, OCT, HEX, PEN
› Logical Operation (AND, OR, NOT, NEG, XOR)



EL-W550XG

› Display type	Dot Matrix
› Display Dimensions	96 × 32 dots
› Power Source	Solar & Battery
› Battery type	LR44 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Protective Case	✓
› Dimensions	168 × 80 × 14 mm
› Weight	99 g
› Built-In Functions	335+
› Entry System	D.A.L.
› Memory Variables	9
› Regression Calculations	7
› 1/x, x ² , √, %, π Key	
› GCD, LCM	
› Quotient and Remainder Calculation	
› Fractions	
› Function Table	

The calculator is developed for the German market, so the menu and operation manual is available in German language only!

› Training (DRILL) Function
› Multi-Line Playback
› Last Answer Recall (ANS)
› FSE Display (SCI, FIX, ENG)
› 1-Variable Statistics
› 2-Variable Statistics
› Mean, Standard Deviation
› NCr, nPr, n!
› Random Numbers Generator
› DEG / RAD / GRAD Modes
› sin, cos, tan and inverses
› Hyperbolic Functions
› Sexagesimal and Decimal Conversions
› Rectangular and Polar Coordinates Conversions
› Number Systems: DEC, BIN, OCT, HEX, PEN
› Logical Operation (AND, OR, NOT, NEG, XOR)
› Metric Conversions
› Physical Constants



EL-W550TG

The calculator is developed for the German market, so the menu and operation manual is available in German language only!

Entspricht den Anforderungen der Richtlinien von KMK und IQB für das WTR (Wissenschaftlicher Taschenrechner) Abitur ab 2030.

✓ includes, among other functions

Entry System: Algebraic (D.A.L.)
 $1/x$, x^2 , $\sqrt{}$, π Key
 Integer division with remainder
 Calculations with fractions
 Function value table
 Editing previous calculations
 Recall of the last result (ANS)
 Number of memories: 9
 FSE display (FIX, SCI, ENG) and floating-point
 Thousand separator
 Statistical functions with 1/2 variables
 Factorial (n!), values of binomial coefficients
 Random number generator
 Angle units DRG (degrees, radians, grads)
 Trigonometric functions (sin, cos, tan, etc.)
 Hyperbolic functions (sinh, cosh, etc.)
 Library of scientific constants

✗ does not include, among other functions

Greatest common divisor, least common multiple
 Numerical solution of equations
 Solution of systems of linear equations
 Calculations with matrices and vectors
 Derivatives and integrals (numerical)
 Complex numbers
 Training function (DRILL)
 Regression models
 Mean, standard deviation
 Conversions between sexagesimal and decimal systems
 Conversions of Cartesian and polar coordinates
 Calculations in DEC, BIN, OCT, HEX, PEN systems
 Logical operators (AND, OR, NOT, NEG, XOR)
 Unit conversions
 Programmability: no

Smart Features:

Simply enter numerical values following the interactive on-screen instructions, and you can find the answer easily of derivative and integral calculations. You don't have to re-enter the formula, and the calculation can be repeated as many times as needed.

Numerical Derivative & Integral

Numerical
Derivative

$$y = 2x^3 + x^2 + 2$$

$$2x^3 + x^2 + 2$$

Numerical
Integral

$\text{2ndF} \quad d/dx$

X?

dx?

d/dx=

4.

$\int dx =$

n?

1.5

b?

100.

a?

-1.

-2.

$\int dx$



EL-W506T

► Display type Dot Matrix
 ► Display Dimensions 96 x 32 dots
 ► Power Source Solar & Battery
 ► Battery type LR44 x 1
 ► Automatic Power Down ✓
 ► Keys Plastic
 ► Protective Case ✓
 ► Dimensions 166 x 80 x 15 mm
 ► Weight 108 g
 ► Built-In Functions 640
 ► Entry System D.A.L.
 ► Memory Variables 9
 ► Regression Calculations 7
 ► $1/x$, x^2 , $\sqrt{}$, π Key
 ► GCD, LCM
 ► Quotient and Remainder Calculation
 ► Fractions
 ► Function Table
 ► Equation Solver (Newton)
 ► System of Linear Equations
 ► Matrix and Vector Calculations

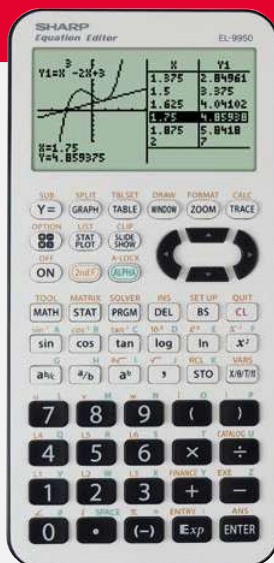
► Numeric Derivative and Integral
 ► Complex Number Calculation
 ► Training (DRILL) Function
 ► Multi-Line Playback
 ► Last Answer Recall (ANS)
 ► FSE Display (SCI, FIX, ENG)
 ► 1-Variable Statistics
 ► 2-Variable Statistics
 ► Mean, Standard Deviation
 ► NCr, nPr, n!
 ► Random Numbers Generator
 ► DEG / RAD / GRAD Modes
 ► sin, cos, tan and inverses
 ► Hyperbolic Functions
 ► Sexagesimal and Decimal Conversions
 ► Rectangular and Polar Coordinates Conversions
 ► Number Systems: DEC, BIN, OCT, HEX, PEN
 ► Logical Operation (AND, OR, NOT, NEG, XOR)
 ► Metric Conversions
 ► Physical Constants



GRAPHING CALCULATOR

EL-9950G

The calculator menu and operation manual is available in English language only!



With its large 132 × 64 dot matrix Write-View display, its graphing capability and slide show feature, the EL-9950G is a very flexible student companion, offering not less than 827 functions.

This graphing calculator covers all the needs of highschool and university demands!

› Display type	Dot Matrix
› Display Dimensions	132 × 64 dots
› Power Source	Battery
› Battery type	AAA × 1 + CR2032 × 1 (Backup)
› Keys	Plastic
› Protective Case	✓
› Dimensions	183 × 86 × 20 mm
› Weight	202 g
› Statistical and Regression Graphs	9 resp. 14 types
› Built-In Functions	827
› Entry System	D.A.L.
› Memory Variables	27
› Graphing Capability	
› Equation Solver (Newton)	
› Matrix and Vector Calculations	
› Rapid Graph / Window / Zoom feature	
› Shift / Change Graph Feature	
› Slide show Feature	
› Normal, Inverse Normal & Binomial Distributions	

Smart Features:

EL-9950G

Equation Editor

Equation Editor offers easy creation and editing of mathematical expressions with interactive interface and ability to directly modify parameters.

Equations appear in the same form as they're written in textbooks and are therefore easier to correct and understand.

By one-line editing

$$\int_0^1 \sqrt{x^2+1} dx = 0.414213562$$



By equation editor

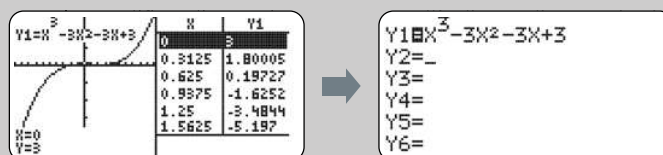
$$\int_0^1 \frac{x}{\sqrt{1+x^2}} dx = 0.414213562$$

Smart Features:

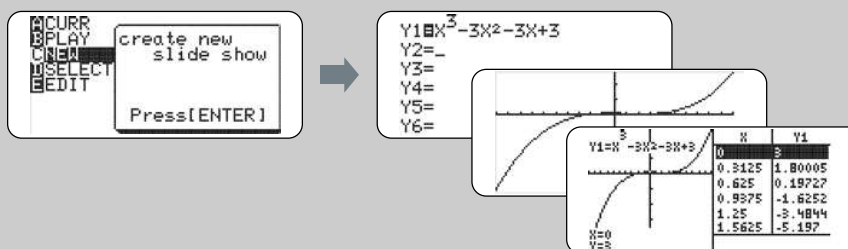
EL-9950G**Scientific graphing**

Functions can be entered in three ways: in Cartesian coordinates, in polar coordinates and using parameters. You can also display numerical series.

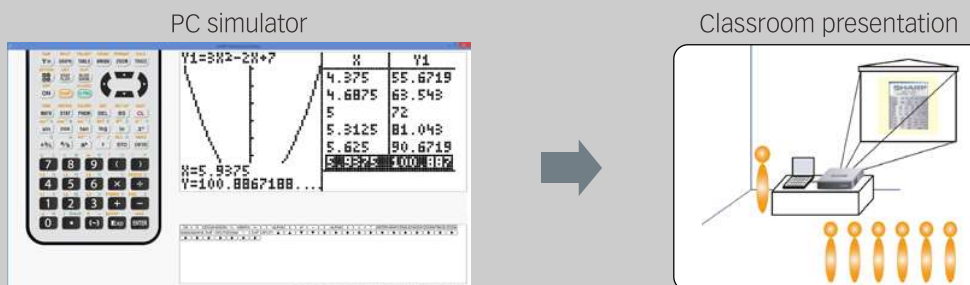
Thanks to a dot matrix display, relationship between the graph and table values can be displayed clearly.

**Slide show**

Slide-Show function can make preparation for upcoming lessons much easier. Teachers can effortlessly integrate individual slides into their lessons. Presentation can be easily started by a single keystroke.

**PC simulator**

The PC simulator enables operation of the EL-9950G on a PC. Screen shots can be captured for use by teachers in classroom presentations.



Comparison table

	EL-501T	EL-510RT	EL-531TH	EL-531TG	EL-520TS	EL-520TG	EL-520X	EL-506TS
Basic Description								
Display type	1 line	1 line	2 lines	2 lines	2 lines	2 lines	2 lines	2 lines
Number of Display Digits	10+2 digits	10+2 digits	10+2 digits	10+2 digits	10+2 digits	10+2 digits	10+2 digits	10+2 digits
Power Source	Battery	Solar & Battery	Battery	Solar & Battery	Solar & Battery	Solar & Battery	Solar & Battery	Solar & Battery
Battery type	LR54 × 1	LR54 × 1	AAA × 1	LR44 × 1	LR44 × 1	LR44 × 1	LR44 × 1	LR44 × 1
Automatic Power Down	✓	✓	✓	✓	✓	✓	✓	✓
Keys	Plastic	Rubber	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic
Protective Case	✓	✓	✓	✓	✓	✓	✓	✓
Dimensions (mm)	127 × 73 × 13	135 × 75 × 10	161 × 80 × 15	161 × 80 × 15	161 × 80 × 15	161 × 80 × 15	158 × 80 × 14	161 × 80 × 15
Weight (g)	68	66	115	110	110	110	95	110
Mathematical Functions								
Built-In Functions	146	169	273	273	420	400+	419	470
Entry System	×	D.A.L.	D.A.L.	D.A.L.	D.A.L.	D.A.L.	D.A.L.	D.A.L.
1/x, x², √, %, π Key	✓	✓	✓	✓	✓	✓	✓	✓
GCD, LCM	×	✓	×	×	×	×	×	×
Quotient and Remainder Calculation	×	×	×	×	×	×	×	×
Fractions	×	×	✓	✓	✓	✓	✓	✓
Function Table	×	×	×	×	×	×	×	×
Equation Solver (Newton)	×	×	×	×	×	×	✓	✓
System of Linear Equations	×	×	×	×	×	×	✓	✓
Matrix & Vector Calculations	×	×	×	×	×	×	×	✓
Numeric Derivative and Integral	×	×	×	×	✓	×	✓	✓
Complex Numbers	✓	✓	×	×	✓	✓	✓	✓
Training (DRILL) Function	×	×	×	×	×	×	×	×
Memory								
Multi-Line Playback	×	✓	✓	✓	✓	✓	✓	✓
Last Answer Recall (ANS)	×	✓	✓	✓	✓	✓	✓	✓
Memory Variables	1	5	9	9	9	9	9	9
Notation and Decimal Places								
FSE Display (SCI, FIX, ENG)	✓	×	✓	✓	✓	✓	✓	✓
3-Digit Punctuation	✓	✓	✓	✓	✓	✓	✓	✓
Statistic Functions								
1-Variable Statistics	✓	✓	✓	✓	✓	✓	✓	✓
2-Variable Statistics	×	×	✓	✓	✓	✓	✓	✓
Regression Calculations	×	×	6	6	6	6	6	6
Mean, Standard Deviation	✓	×	✓	✓	✓	✓	✓	✓
NCr, nPr, n!	✓	×	✓	✓	✓	✓	✓	✓
Random Numbers Generator	✓	✓	✓	✓	✓	✓	✓	✓
Trigonometric Functions								
DEG / RAD / GRAD Modes	✓	✓	✓	✓	✓	✓	✓	✓
sin, cos, tan and inverses	✓	✓	✓	✓	✓	✓	✓	✓
Hyperbolic Functions	✓	✓	✓	✓	✓	✓	✓	✓
Sexagesimal and Decimal Conversions	✓	✓	✓	✓	✓	✓	✓	✓
Rectangular and Polar Coordinates Conversions	✓	✓	✓	✓	✓	✓	✓	✓
Number Systems								
Number Systems: DEC, BIN, OCT, HEX, PEN	✓	×	✓	✓	✓	✓	✓	✓
Logical Operation (AND, OR, NOT, NEG, XOR)	×	×	✓	✓	✓	✓	✓	✓
Scientific Functions								
Metric Conversions	×	×	×	×	✓	✓	✓	✓
Physical Constants	×	×	×	×	✓	✓	✓	✓

You can find the respective color and packaging variants for each model on our website www.sharp-calculators.com

	EL-W531XH	EL-W531XG	EL-W531TL	EL-W531TH	EL-W531TG	EL-W550XG	EL-W550TG	EL-W506T	EL-9950G
Basic Description									
Display type	Dot Matrix	Dot Matrix	Dot Matrix	Dot Matrix	Dot Matrix	Dot Matrix	Dot Matrix	Dot Matrix	Dot Matrix
Display Dimensions	96 × 32 dots	96 × 32 dots	96 × 32 dots	96 × 32 dots	96 × 32 dots	96 × 32 dots	96 × 32 dots	96 × 32 dots	132 × 64 dots
Power Source	Battery	Solar & Battery	Battery	Battery	Solar & Battery	Solar & Battery	Solar & Battery	Solar & Battery	Battery
Battery type	AAA × 1	LR44 × 1	LR44 × 1	AAA × 1	LR44 × 1	LR44 × 1	LR44 × 1	LR44 × 1	AAA × 1
Automatic Power Down	✓	✓	✓	✓	✓	✓	✓	✓	✓
Keys	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic
Protective Case	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dimensions (mm)	168 × 80 × 14	168 × 80 × 14	158 × 80 × 15	166 × 80 × 15	166 × 80 × 15	168 × 80 × 14	166 × 80 × 15	166 × 80 × 15	183 × 86 × 20
Weight (g)	103	100	101	113	108	99	113	108	202
Mathematical Functions									
Built-In Functions	335	335	420	422	422	335+	258	640	827
Entry System	D.A.L.	D.A.L.	D.A.L.	D.A.L.	D.A.L.	D.A.L.	D.A.L.	D.A.L.	D.A.L.
1/x, x², √, %, π Key	✓	✓	✓	✓	✓	✓	✓/✓/✓/✓/✓	✓	✓
GCD, LCM	×	×	✓	✓	✓	✓	×	✓	✓
Quotient and Remainder Calculation	×	×	✓	✓	✓	✓	✓	✓	✓
Fractions	✓	✓	✓	✓	✓	✓	✓	✓	✓
Function Table	×	×	✓	×	×	✓	✓	✓	✓
Equation Solver (Newton)	×	×	×	×	×	×	×	✓	✓
System of Linear Equations	×	×	×	×	×	×	×	✓	✓
Matrix & Vector Calculations	×	×	×	×	×	×	×	✓	✓
Numeric Derivative and Integral	×	×	×	×	×	×	×	✓	✓
Complex Numbers	×	×	×	×	×	×	×	✓	✓
Training (DRILL) Function	✓	✓	✓	✓	✓	✓	×	✓	×
Memory									
Multi-Line Playback	✓	✓	✓	✓	✓	✓	✓	✓	✓
Last Answer Recall (ANS)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Memory Variables	9	9	9	9	9	9	9	9	27
Notation and Decimal Places									
FSE Display (SCI, FIX, ENG)	✓	✓	✓	✓	✓	✓	✓	✓	✓
3-Digit Punctuation	✓	✓	✓	✓	✓	✓	✓	✓	✓
Statistic Functions									
1-Variable Statistics	✓	✓	✓	✓	✓	✓	✓	✓	✓
2-Variable Statistics	✓	✓	✓	✓	✓	✓	✓	✓	✓
Regression Calculations	7	7	7	7	7	7	×	7	14
Mean, Standard Deviation	✓	✓	✓	✓	✓	✓	×	✓	✓
NCr, nPr, n!	✓	✓	✓	✓	✓	✓	✓/✓	✓	✓
Random Numbers Generator	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trigonometric Functions									
DEG / RAD / GRAD Modes	✓	✓	✓	✓	✓	✓	✓	✓	✓
sin, cos, tan and inverses	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hyperbolic Functions	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sexagesimal and Decimal Conversions	✓	✓	✓	✓	✓	✓	×	✓	✓
Rectangular and Polar Coordinates Conversions	✓	✓	✓	✓	✓	✓	×	✓	✓
Number Systems									
Number Systems: DEC, BIN, OCT, HEX, PEN	✓	✓	✓	✓	✓	✓	×	✓	✓
Logical Operation (AND, OR, NOT, NEG, XOR)	✓	✓	✓	✓	✓	✓	×	✓	✓
Scientific Functions									
Metric Conversions	×	×	×	×	×	✓	×	✓	×
Physical Constants	×	×	×	×	×	✓	✓	✓	×

You can find the respective color and packaging variants for each model on our website www.sharp-calculators.com



€ 8

1

20

130

PRINTING CALCULATORS





EL-1611V

› Display type	LCD
› Number of Display Digits	12 digits
› Power Source	Battery AA × 4 or optional adapter
› Battery type	AA × 4
› Automatic Power Down	✓
› Keys	Rubber
› Dimensions	191 × 99 × 42 mm-
› Weight	320 g
› Printing Colours	black, red
› Printing Speed	2 lines/sec.
› Paperroll	Standard (58 × 80 mm)
› Ink Roller	EA-772R

› Tax Calculation +/-
› Memory (4 keys)
› Double Zero Key (00)
› 3-Digit Punctuation
› Percent (%)
› Decimal Setting (F, 3, 2, 1, 0, A)
› Round Up / Round Down



EL-1750V

› Display type	LCD
› Number of Display Digits	12 digits
› Power Source	Battery AA × 4 or optional adapter
› Backup battery type	CR2032 × 1
› Automatic Power Down	✓
› Keys	Plastic
› Dimensions	230 × 150 × 52 mm
› Weight	500 g
› Printing Colours	black, red
› Printing Speed	2 lines/sec.
› Paperroll	Standard (58 × 80 mm)
› Ink Roller	EA-772R

› Cost / Sell / Margin
› Tax Calculation +/-
› Memory (4 keys)
› Double Zero Key (00)
› 3-Digit Punctuation
› Percent (%)
› Sign Change (+/-)
› Correction Key (→)
› Grand Total (GT)
› Average Calculation (AVG)
› Item Counter
› Decimal Setting (F, 3, 2, 0, A)
› Round Up / Round Down

Smart Features:

By pressing the AVG button you can immediately calculate the arithmetic average of all values entered.

Average Calculation (AVG)

Calculation

$$(100 + 30 + 40 + 0 + 75 + 100 + 0) \div 7 = 49$$

DAY	SALES	OPERATION	PRINT
Monday	100	100 +	100
Tuesday	30	30 +	30
Wednesday	40	40 +	40
Thursday	0	0 +	0
Friday	75	75 +	75
Saturday	100	100 +	100
Sunday	0	0 AVG	49



Smart Features:

Cost / Sell / Margin

Quick and convenient calculation of cost, selling price and margins. After entering two values we have available (e.g., costs and margins), the calculator automatically calculates the third value.

Calculation 1

Cost	98,50	98,50	(COST)
Sell	129,50	129,50	(SELL)
Margin %	?		(FIND) (MARGIN) = 23,938%

Answer

Calculation 2

Cost	65,50	65,50	(COST)
Margin %	38%	38	(MARGIN)
Sell	?		(FIND) (SELL) = 105,65

Answer

Calculation 3

Sell	175,50	175,50	(SELL)
Margin %	35%	35	(MARGIN)
Cost	?		(FIND) (COST) = 114,08

Answer



CS-2635RH

› Display type	Digitron	› Currency Conversion
› Number of Display Digits	12 digits	› Tax Calculation +/-
› Power Source	AC Power Supply	› Memory (8 keys)
› Backup battery type	CR2032 x 1	› Double Zero Key (00)
› Automatic Power Down	✓	› 3-Digit Punctuation
› Keys	Plastic	› Percent (%)
› Dimensions	345 x 250 x 87 mm	› Sign Change (+/-)
› Weight	2 000 g	› Correction Key (→)
› Printing Colours	black, red	› Mark-up / -down (MU)
› Printing Speed	4,3 lines/sec.	› Item Counter
› Paperroll	Standard (58 x 80 mm)	› Resume Function
› Ink Roller	EA-772R	› Round Up / Round Down
		› Decimal Setting (F, 6, 4, 3, 2, 1, 0, A)



Smart Features:

This practical function offered by calculator models with a print feature allows you to register and print the number of items contained in a particular calculation.

This is especially convenient when adding up a large number of items.

The sum of items is printed whenever you push the **[*]** button.

Item Counter

Total number of invoices

INVOICE	SALES	OPERATION	PRINT
Invoice A	100,55	100,55 [+]	100•55+
Invoice B	200,00	200 [+]	200•00+
Invoice C	200,00	[+]	200•00+
Invoice D	400,55	400,55 [+]	400•55+
Invoice E	500,65	500,65 [+]	500•65+
NUMBER OF ITEMS		[*]	005
			1,401•75*



EL-2607V

› Display type	Digitron	› Currency Conversion
› Number of Display Digits	12 digits	› Tax Calculation +/-
› Power Source	AC Power Supply	› Memory (4 keys)
› Backup battery type	CR2032 x 1	› Double Zero Key (00)
› Automatic Power Down	✓	› 3-Digit Punctuation
› Keys	Plastic	› Time / Day Calculation
› Dimensions	327 x 222 x 78 mm	› Percent (%)
› Weight	1 810 g	› Sign Change (+/-)
› Printing Colours	black, red	› Correction Key (→)
› Printing Speed	4,5 lines/sec.	› Grand Total (GT)
› Paperroll	Standard (58 x 80 mm)	› Mark-up / -down (MU)
› Ink Roller	EA-772R	› Average Calculation (AVG)
		› Item Counter
		› Resume Function
		› Round Up / Round Down
		› Decimal Setting (F, 6, 3, 2, 1, 0, A)



Smart Features:

Day / Date Calculation

- › Day Calculation: determines number of days between two dates.
- › Date Calculation: determines the date after a number of days and a starting date have been entered.

Calculation 1

How many days are there between
21 October and 24 December

64 days

Calculation 2

Add 50 days to March 27

May 15

Smart Features:

Mark-up / -down (MU)

Mark-up Function (MU) button is a simple way to calculate a margin.

A number of calculators with the print function, as well as desktop models, offer this useful calculation.

Calculation 1

The original cost is €100, and the required margin is 5 %.
Determine the sales price, including a 5 % margin.

OPERATION	DISPLAY
100 $\times$	100.
5 MU	
	105.00

PRINT
100 • $\times$
5 • %
5 • 00
105 • 00*

Mark-up
Sales price including
margin

Calculation 2

Calculate a 10 % discount off the sales price of €100

OPERATION	DISPLAY
100 $\times$	100.
10 +/- MU	
	60.00

PRINT
100 • $\times$
– 10 • %
– 10 • 00
90 • 00*

Discount
Sales price after
discount



Accessories



Ink rollers & Ink ribbon

Ink roller EA772R / EA772R compatible

(Color: ● black, ● red)

Models: Sharp EL1607P (da 06/2012), EL1611PGY, EL-1611V,
EL1750PIIIGY, EL1750V

Ink ribbon GR51 / GR51 compatible

(Color: ● black, ● red)

Models: Sharp EL2607PGY, EL2607V, CS2635RHGY



Adaptors

MX15W EU (for EU)

Models: SHARP EL1611PGY, EL-1611V, EL1750PIIIGY, EL1750V

MX15W UK (for UK)

Models: SHARP EL1611PGY, EL-1611V, EL1750PIIIGY, EL1750V



Comparison table

	EL-1611V	EL-1750V	CS-2635RH	EL-2607V
Basic Description				
Display type	LCD	LCD	Digitron	Digitron
Number of Display Digits	12 digits	12 digits	12 digits	12 digits
Backup battery type	×	CR2032 × 1	CR2032 × 1	CR2032 × 1
Automatic Power Down	✓	✓	✓	✓
Power Source	AA × 4 or adaptor MX15W	AA × 4 or adaptor MX15W	AC Power Supply	AC Power Supply
Keys	Rubber	Plastic	Plastic	Plastic
Dimensions (mm)	191 × 99 × 42	230 × 150 × 52	345 × 250 × 87	327 × 222 × 78
Weight (g)	320	500	2 000	1 810
Features				
Cost / Sell / Margin	×	✓	×	×
Currency Conversion	×	×	✓	✓
Tax Calculation +/-	✓	✓	✓	✓
Memory	4 keys	4 keys	8 keys	4 keys
Double Zero Key (00)	✓	✓	✓	✓
3-Digit Punctuation	✓	✓	✓	✓
Time / Day Calculation	×	×	×	✓
Percent (%)	✓	✓	✓	✓
Sign Change (+/-)	×	✓	✓	✓
Correction Key (→)	×	✓	✓	✓
Grand Total (GT)	×	✓	×	✓
Mark-up / -down (MU)	×	×	✓	✓
Average Calculation (AVG)	×	✓	×	✓
Item Counter	×	✓	✓	✓
Resume Function	×	×	✓	✓
Decimal Setting	F, 3, 2, 1, 0, A	F, 3, 2, 0, A	F, 6, 4, 3, 2, 1, 0, A	F, 6, 3, 2, 1, 0, A
Round Up / Round Down	✓	✓	✓	✓
Print				
Printing Colours	black, red	black, red	black, red	black, red
Printing Speed	2 lines/sec.	2 lines/sec.	4,3 lines/sec.	4,5 lines/sec.
Paperroll (dimensions)	EA-7100P (58 × 25 mm)	EA-7100P (58 × 25 mm)	EA-7100P (58 × 25 mm)	EA-7100P (58 × 25 mm)
Ink Ribbon	×	×	✓	✓
Ink Roller	EA-772R	EA-772R	×	×

You can find the respective color and packaging variants for each model on our website www.sharp-calculators.com

A top-down photograph of a wooden desk with various Sharp stationery items. In the upper left, a portion of a metal ruler is visible. To its right is a small, rectangular eraser with the word 'ERASER' and 'KE30 NEO' printed on it. In the lower center, a white Sharp notepad with a black border lies diagonally, with a silver pencil resting on it. The bottom left corner of the notepad features the 'SHARP' logo and the website 'www.sharp-calculators.com'. In the bottom right corner, the top of a black Sharp calculator is visible, showing a digital display and the 'SHARP EL-4033S' model number.

Exclusive representation for Europe:

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Sharp Calculators are represented in Europe by the MORAVIA Consulting spol. s r.o.
For further information please contact us through the contact or support section
or visit www.sharp-calculators.com