

FX 260 Training guide

Tools FX 260 Solar Scientific Calculator
Overhead OH 260

Handouts Applicable activities

Key Points/ Overview

- ❖ Basic scientific calculator
 - ❖ Solar powered
 - ❖ Ability to fix decimal places
 - ❖ Backspace key to fix entry mistakes
 - ❖ Single variable statistics
 - ❖ The ONLY calculator that is GED approved
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Statistics

- Entering and analyzing statistical data

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Modes

Before starting a calculation, you must first enter the correct mode.

To perform this type of calculation:	Perform this key operation:	Name of mode:
Basic arithmetic calculations	[MODE] [0]	COMP
Standard deviation calculations	[MODE] [.]	SD
Calculations using degrees	[MODE] [4]	DEG
Calculations using radians	[MODE] [5]	RAD
Calculations using grads	[MODE] [6]	GRA
Number of decimal place specification	[MODE] [7] [x] (x = # of decimal places and ranges from 0 – 9)	FIX
Number of significant digit specification	[MODE] [8] [x] (x = # of significant digits and ranges from 0 – 9)	SCI
Cancels FIX and SCI settings	[MODE] [9]	NORM

- Display indicators show the current mode setting. If there is no display shown, this indicates COMP mode.
- The COMP and SD modes can be used in combination with the angle unit settings.

Basic Arithmetic Calculations

Basic Functions and Operations

The following are the basic functions and operations of the calculator.

- ▶ Backspaces and deletes the right digit of a displayed input value.
- [ON] Turns power on.
- [C] Clears the displayed input value.
- [SHIFT] Shifts the keyboard and accesses functions marked above the keys.

Note: There is no power off key.

Basic Calculations

Be sure to press [AC] when beginning a new calculation.

- [+] [-] [x] [÷] Addition, subtraction, multiplication, and division
- [=] Performs calculation
- [+/-] Changes the sign of a displayed value. You must enter the value first.
- [() ()] Left and right parentheses. Note: The calculator uses “order of operations”. So for $2 + 3 \times 4$, you do not need parentheses around 3×4 . The calculator will calculate 3×4 , then add 2.
- [SHIFT] [π] This will input the numerical value for π .
- [SHIFT] [X-Y] Swaps the value of x and y in power and root calculations. Also swaps the minuend and subtrahend in subtraction calculations.
Example: for 3^2 , to swap 3 and 2, press [3] [x^y] [2] [SHIFT] [X-Y] [=].
The answer displayed is 8.

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Constant calculations

You can perform “constant” calculations by setting an automatic constant to continually add, subtract, multiply, or divide. Pressing [+] or [-] twice after inputting a number, will make that number a constant. “K” will be shown on the display, indicating that a constant is being used.

For addition, enter [constant] [+] [+]. When you press [=], the constant will be added to the number on the display. Pressing [AC] clears the constant.

	Display
For example: [2] [+]	4
[+]	
Each time you press [=], it will add 2 to the displayed number	
[3]	7
[+]	
[4]	8
[=]	
[10]	13
[=]	

Fraction calculations and simplification

- Use the COMP mode for fraction calculations.
- You can perform addition, subtraction, multiplication, and division.
- The result of a calculation that mixes fractions and decimal values is displayed as a decimal value.
- You can enter a fraction using the [a b/c] key.
- The total number of digits, including division marks, cannot exceed 10.

Be sure to press [AC] when beginning a new calculation.

[a b/c]	Inputs the integer part of a fraction (mixed number) and the numerator (b) /denominator (c) of a fraction in the form b/c. Example: to input $\frac{1}{2}$, press [1] [a b/c] [2]. Example: to input $2\frac{1}{2}$, press [2] [a b/c] [1] [a b/c] [2].
[SHIFT] [d/c]	Converts the displayed value between mixed number and improper fraction.
[a b/c]	Converts the displayed value between fraction and decimal form.

NOTE: After entering a fraction using a b/c, pressing [=] will display it in simplest form.

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Percent calculations

- Use the COMP mode for percentage calculations.

	<u>Example</u>	<u>Display</u>
To find percentage of a number. 12% of 15	[15] [x] [12] [SHIFT] [%]	1.8
To calculate percentage of one number to another. What percentage of 80 is 40?	[40] [÷] [80] [SHIFT] [%]	50
To add a percentage. 15% to 1000 (or 1000 increased by 15%)	[1000] [x] [15] [SHIFT] [%] [+]	1150
To discount a percentage. 85 by 10%	[85] [x] [10] [SHIFT] [%] [-]	76.5
% change, when a value is increased From 30 to 36	[36] [-] [30] [SHIFT] [%]	20
Percent of increase, when an amount is added. 300 cc is added to 500 cc	[300] [+] [500] [SHIFT] [%]	160

Powers and roots

[x^2]	Squares a number. Example: [5] [x^2]
[SHIFT] [x^3]	Cubes a number. Example: [3] [SHIFT] [x^3]
[x^y]	Raises a number to a power (other than 2 or 3). Example: [2] [x^y] [4] [=]
[SHIFT] [1/x]	Calculates the reciprocal of the displayed value. Example: [3] [SHIFT] [1/x]
[SHIFT] [$\sqrt{}$]	Calculates the square root of a number. Example: [9] [SHIFT] [$\sqrt{}$]
[SHIFT] [$3\sqrt{}$]	Calculates the cube root of a number. Example: [27] [SHIFT] [$3\sqrt{}$]
[SHIFT] [$x^{1/y}$]	Calculates the specified root of a number. Example: For $27^{1/3}$, press [27] [SHIFT] [$x^{1/y}$] [3] [=]

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Internal Rounding

Calculates internal rounding based on the number of decimal places you have on the display. For example, set the calculator to 3 fixed decimal places.

Press [200] [÷] [7] [=]

Press [SHIFT] [RND]. This will truncate the number at 3 decimal places.

Press [x] [14] [=]

(The answer displayed is 399.994).

Probability

Random number generation

[SHIFT] [RAN#] Generates a random number between 0 and 0.999.

Permutations and combinations

[SHIFT] [nPr] A permutation is a selection of objects in which the order matters.

Example: To determine the number of possible different arrangements using 4 items selected from 10 items.

[10] [SHIFT] [nPr] [4] [=] 5040

[SHIFT] [nCr] A combination is a selection of objects from a collection and order is irrelevant.

Example: To determine the number of different combinations of 4 items selected from 10 items. [10] [SHIFT] [nCr] [4] [=] 210

Factorials

[SHIFT] [x!l] Calculates the factorial of a number. Example: [5] [SHIFT] [!l]

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Memory

Memory Calculations

The memory function is convenient for calculating cumulative totals.

[M+] Adds displayed value to memory.

[MR] Recalls the value stored in memory.

[SHIFT] [M-] Subtracts the displayed value from memory.

[SHIFT] [Min] Replaces the current memory contents with the displayed value.

To clear memory, press [0] [SHIFT] [Min] or [AC] [SHIFT] [Min].

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Trigonometry

Be sure to select the angle unit (D, R, G) you want to use before beginning a calculation.

Mode 4 = Degrees (Deg)

Mode 5 = Radians (Rad)

Mode 6 = Grads (Gra)

Trigonometric/Inverse Trigonometric Functions

To calculate the sine, cosine, or tangent of the displayed angle.

Example (in degree mode): [30] [sin] (= .5)

To calculate the arcsine, arccosine, or arctangent.

Example (in degree mode): [.5] [SHIFT] [sin] (= 30)

Hyperbolic/ Inverse Hyperbolic Functions

To calculate the hyperbolic sine, cosine, or tangent of the displayed angle.

Example (in degree mode): [3.6] [hyp] [sin] (= 18.28545536)

To calculate the hyperbolic arcsine, arccosine, or arctangent of the displayed angle.

Example (in degree mode): [30] [hyp] [SHIFT] [sin⁻¹] OR
[30] [SHIFT] [hyp] [sin⁻¹] (= 4.094622224)

Coordinate Conversion

You can convert between rectangular and polar coordinates.

Make sure you are using the correct angle unit (D, R, G) before starting your calculation.

[SHIFT] [R-P] Rectangular to polar coordinate conversion

[SHIFT] [P-R] Polar to rectangular coordinate conversion

[SHIFT] [X-Y] Use this operation to switch between the two coordinates produced by the conversion operation.

Example: To convert polar coordinates ($r = 2$, $\theta = 60$) to rectangular coordinates (x, y).

[2] [SHIFT] [P-R] [60] [=] This gives you the x value.

[SHIFT] [X-Y] This gives you the y value.

Degrees/Minutes/Seconds

You can perform calculations using degrees, minutes, and seconds, and convert between sexagesimal and decimal values.

Examples:

Keystrokes

[2.5] [=]

Press [°,,,]

[10] [°,,,] [15] [°,,,] [12] [°,,,] [x] [4] [=]

Display

2.5

$2^\circ 30' 0''$

$41^\circ 0' 48''$

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Logarithmic Functions

You can find logarithms, natural logarithms, and antilogarithms.

- | | |
|----------------------------|--|
| [log] | Calculates the common logarithm of the displayed value.
[100] [log] |
| [ln] | Calculates the natural logarithm (base e) of the displayed value.
[90] [ln] |
| [SHIFT] [10 ^x] | Calculates the common antilogarithm of the displayed value,
which is 10 raised to the power of the value.
[2] [SHIFT] [10 ^x] |
| [SHIFT] [e ^x] | Calculates the natural antilogarithm of the displayed value, which
is e raised to the power of the value.
[1] [SHIFT] [e ^x] |

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Statistics

Entering and analyzing statistical data

Enter the statistics mode (SD) by pressing [MODE] [.].

Cancel FIX and SCI settings by pressing [MODE] [9].

Pressing [MODE] [0] (Comp) exits the SD mode and clears all input data.

[SHIFT] [SAC] Clears statistical memory. Be sure to perform this operation before inputting new data.

[DATA] Inputs the displayed value as data. Press [DATA] twice to input two entries of the same value. (NOTE: This is the "M+" key).

[SHIFT] [DEL] Deletes the displayed value as data.

Note: You can input multiple entries of the same data using [x].

To input 100 ten times, press [100] [x] [10] [DATA]

After entering data, you can retrieve the following values:

[SHIFT] [σn^{-1}] Sample standard deviation.

[SHIFT] [σn] Population standard deviation.

[SHIFT] [\bar{x}] Arithmetic mean.

[SHIFT] [n] Number of data items.

[SHIFT] [Σx] Sum of data.

[SHIFT] [Σx^2] Sum of the squares.