HP Business Calculators – Calculator Display Questions

Introduction

This document addresses display questions for the HP 10b, 12c, 17bii, and 19bii calculators.

Calculator symbol key

The procedures in this document use the following text to represent symbol keys:

Key	Description	Text Representation
■	colored key; shift key	SHIFT
÷	Divide	divide

Restoring decimal points when numbers contain commas

Digit Separators

As a number is keyed in, each group of three digits to the left of the decimal point is automatically separated in the display. When the calculator is first turned on after coming from the factory - or after Continuous Memory is reset - the decimal point in displayed numbers is a dot, and the separator between each group of three digits is a comma. The calculator can be set to display a comma for the decimal point and a dot for the three-digit separator. To do so, follow the instructions below for the calculator model.

10b

Press **SHIFT**, then [**.**] (decimal point key)

12c

Turn off the calculator. Press and hold down the [**.**] (decimal point) key. While holding it down, press and release the **ON** key. Then release the [**.**] (decimal point) key

17bii

Press **DISP**, [**.**] (decimal point) key

19bii

To change the decimal point and digit separator, press **DISP**. Specify the decimal point by pressing [**.**] or [**,**]. [**.**] sets a period as the decimal point and comma as the digit separator. For example, the number "one million" is displayed as 1,000,000.00. [**,**] sets a comma as the decimal point and period as the digit separator. For example, one million is displayed as 1.000.000,00.

Changing the number of decimal places the calculator displays

10b

Press **SHIFT**, then **DISP** and the number of decimal places required.

12c

Press the gold **f** key, then the number of places past the decimal point that is required. In the following example, notice how the displayed form of the number inside the calculator – 14.87456320, for example – is rounded to the specified number of digits.

Keys	Display	Description
Press **f**, then **4**	14.8746	
Press **f**, then **1**	14.9	
Press **f**, then **0**	15.	
Press **f**, then **9**	14.87456320	Although nine decimal places were specified after f, only eight are displayed since the display can show a total of only 10 digits

The standard display format, plus the specified number of decimal places, remain in effect until they are changed; they are not reset each time the calculator is turned on. However, if Continuous Memory is reset, when the calculator is next turned on, numbers will be displayed in the standard display format with two decimal places shown.

If a calculated answer is either too small or too large to be displayed in the standard display format, the display format automatically switches to scientific notation. The display returns to the standard display format for all numbers that can be displayed in that format.

17bii

To change the number of displayed decimal places, first press the **DSP** key, then either:

- Press **FIX**, type the number of decimal places desired (from 0 to 11), and press **INPUT**

OR

- Press **ALL** to see a number as precisely as possible at any time (12 digits maximum).

Determining what "E" in a number (for example, 2.51E-13) means

10b

Whenever the answer to a calculation is greater than 999,999,999,999 or smaller than .999999999999, the calculator automatically provides an answer in scientific notation (or exponent of ten, for example, 2.51x10E-13). See Scientific Notation below. Press **C** and the display will return to normal.

Scientific Notation

Scientific notation is used to represent numbers that are too large or too small to fit in the display. For example, if the number 10,000,000 [**X**] 10,000,000 [**=**] is entered, the result is 1.00E14, which means "one times ten to the fourteenth power" or "1.00 with the decimal moved fourteen places to the right." Enter this number by pressing **1**, **SHIFT**,[**E**], then **14**. The **E** stands for "exponent of ten."

Exponents can also be negative for very small numbers. The number 0.000000000000 is displayed as 4.00E-12, which means "four times ten to the *negative* twelfth power" or "4.0 with the decimal point moved 12 places to the left." Enter this number by pressing **1**, **SHIFT**, [**E**], [**+/-**], then **12**.

17bii

There are two possible answers:

1. Whenever the answer to a calculation is greater than 999,999,999,999 or smaller than .999999999999, the calculator automatically provides an answer in scientific notation (or exponent of ten, for example, 2.51x10^{-13}). The display format does not need to be reset; this means that the numbers are greater or smaller than the calculator can display.
2. The display format is set to "All" which displays any number to its full precision. It is probably desirable to set the calculator to "Fixed" mode. Press **DSP FIX**, the number of places past the decimal point that are required, and **INPUT**.

19bii

1. Whenever the answer to a calculation is greater than 999,999,999,999or smaller than .999999999999, the calculator automatically provides an answer in scientific notation (or exponent of ten, for example, 2.51×10^{-13}). (See Scientific Notation below). The display format does not need to be reset; this means that the numbers are greater or smaller than the calculator can display.

2. The display format is set to "All" which displays any number to its full precision. It is probably desirable to set the calculator to "Fixed" mode. Press **DISPFIX**, the number of places past the decimal point that is required, then **INPUT**.

Scientific Notation

Scientific notation is useful when working with very large or very small numbers. For example, the 1984 Gross National Product of the United States was $3,662,800,00,000. Scientific notation writes this number as a smaller number (called a mantissa) times 10 raised to a power. In this case, the decimal point is moved 12 places to the left, and the number is written as 3.6628×10^{12}. The same process is used for very small numbers, except that the decimal point is moved to the right, and 10 is raised to a negative power. For example, 0.00000752 can be written as 7.52×10^{-6}.

When a calculation produces a result too large or too small for the 19bii to display, the number is automatically displayed in scientific notation, using a capital E in place of "X 10".

To key in numbers in scientific notation:

1. Key in the mantissa. If the mantissa is negative, use [**+/-**] to change the sign.
2. Press either the alphabetic **E** or **SHIFT**, then **E** to start the exponent.
3. If the exponent is negative press [**-**].
4. Key in the exponent.

Keys	Display	Description
Press **4.78**, **E**, **13**, **divide**, **8**, **E**, **25**, then [=]	5.98E-13	4.78×10^{13} Divide 8×10^{25} equals $5.98 \times {}^{-13}$
Press **2.36**, [+/-], **SHIFT**, **E**, [-], **15**, **x**, **12**, then [=]	-2.83E-14	$-2.36 \times 10^{-15} \times 12 = -2.83 \times 10^{-14}$.

Restoring English to the messages and the menu labels in the display

17bii

Models of the HP 17bii sold in many countries outside of the United States include a menu to select the language for messages and labels. To restore English, press **SHIFT**, **MODES**, **ENGL**.

19bii

Press **SHIFT**, **MODES**, **INTLENG**.

Adjusting the contrast on the display

10b, 17bii

Hold down **ON** and tap [+] to darken the contrast. Hold down **ON** and tap [-] to lighten the contrast.

19bii

There is a list of keystrokes on the left side of the calculator that shows how to adjust the display contrast.

Determining what PEND in the display means (10b)

An arithmetic operation is pending (in progress).

Determining what [:] in the display means (10b)

The calculator is indicating that **INPUT** has been pressed. The **INPUT** key is used to separate two numbers when using two number functions or two variable statistics.

Attempting to set the P/YR, but when keying in the number of periods per year and pressing gold P/YR some other number appears on the display

10b

The wrong key is being pressed. **P/YR** is above the **PMT** key, not above the **N** key. Check the **P/YR** setting by pressing **SHIFT**, then **CLEAR ALL**. The number of periods per year will flash briefly on the display.

NOTE:
This is a mode setting; it does not have to be set for each calculation.

The characters on the display are broken (running) (12c)

This display was not designed for alpha characters. A clever combination of annunciators is used to create the characters, some of which may appear unusual in size and shape.

Getting rid of "C" in the display (12c)

Press **STO**, then **EEX**.

Determining what a flashing asterisk (*) in the lower left hand corner of the display means (12c)

New batteries are required.

When running the self-test, other annunciators (USER and GRAD) appear in the display (12c)

USER and GRAD are used on other calculators that share a common LCD display. The HP-12C does not have these features.

Changing the number of decimal places the 19bii displays

To change the number of displayed decimal places:

1. Press **DISP**
2. Perform **a** or **b**:
   a. To specify the number of displayed decimal places, press **FIX**. Type the number of decimal places, (an integer from 0 to 11) and press **INPUT**
   b. To display numbers as precisely as possible (up to a maximum of 12 digits), press **ALL**

Changing the number of displayed decimal places affects what is seen, but does not affect internal calculations. Regardless of the numbers of decimal places displayed, the HP19bii stores all numbers with 12 digits

Keys	Display	Description
Press **45**, **x**, **.1256**, then **[=]**	5.65	Two decimal places are displayed
Press **DISP**, **FIX**, **4**, then **INPUT**	5.6520	Four decimal places are displayed

Keys	Display	Description
Press **DISP**, then **ALL**	5.652	Trailing zeros are dropped
Press **DISP**, **FIX**, **2**, then **INPUT**	5.65	Two decimal places are displayed