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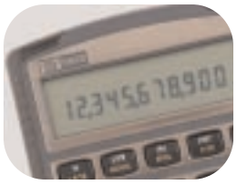
HP 10BII Basic Arithmetic



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The Basic Operations

To do arithmetic, just enter the problem in the order in which you would usually say it aloud. To add 2 and 3, for example, you would say "2 + 3 = ?" So, just key it in like that, too: 2 [+] 3 [=].

Got something more complicated? Use parentheses to group the calculations. For example, to compute 5(36 – 7), just type it as you see it: 5 [×] [(] 36 [−] 7 [)] [=] (Answer: **145.00**) Note that you can use up to five sets of unopened parentheses before you need to close any.

Need to change the sign of a value? Use the [+/–] key. For example, to calculate 3.5·(–4.6), you would press 3.5 [×] 4.6 [+/–] [=]. (Answer: **-16.10**)

Challenge: Calculate $\frac{(7 \times 6.3) - 9}{(-7.5 + 12)} + 4$

Solution: 7 [×] 6.3 [−] 9 [÷] [(] 7.5 [+/–] [+] 12 [)] [+] 4 [=]

Answer: **11.80** (Note how multiplication and division take precedence over addition and subtraction, saving you the need for double parentheses here.)

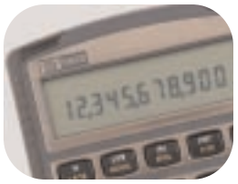
Percentages are easy, too:

Problems: Find 44% of 39.95.

A dinner tab without tip is $57.45. What's the total, including a 15% tip?

Solutions: 44 [%] [×] 39.95 [=] (Answer: **17.58**)

57.45 [+] 15 [%] [=] (Answer: **66.07**)



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Using the M Register

You can't do it all with parentheses, though. Sometimes you need to save some result for later use. Of course, you could use any numbered storage register, along with STO and RCL. But the **M** register is even more convenient.

Example: Save the value $\sqrt{895}$ in the **M** register.

Solution: 895 $\sqrt{x}$ →M

Example: Now add 16 to the value already in the **M** register, without using the + key.

Solution: 16 M+. See how the M+ key makes it easy to add to your saved value? (And note that if you want to subtract, you just add a negative value.)

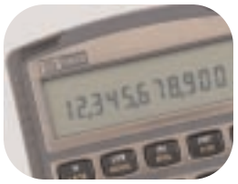
Example: Now compute $53.1 \cdot (16 + \sqrt{895})$ without using the $\sqrt{x}$ key.

Solution: 53.1 × RM =. Answer: **2,438.17**

As you can see, using the **M** register as a "temporary holding bin" for some result is just like using any other numbered storage register, but it takes fewer keystrokes.

For example, to do the above procedure using storage register 1, you would have to do this:

895 $\sqrt{x}$ STO 1, then 16 STO+ 1, then 53.1 + RCL 1 =.



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Using the K Register

Sometimes it's not just a number you'd like to save. Sometimes it's an entire keystroke sequence or operation that would be very convenient to keep handy for repeated use. That's what the **K** register is for.

Solve this: Add 3.1416 to each of these values: 6 23.92 –0.46 8.504

Solution:

6 [+] 3.1416 [K] [=] (Answer: **9.14**)

23.92 [=] (Answer: **27.06**)

.46 [+/–] [=] (Answer: **2.68**)

8.504 [=] (Answer: **11.65**)

Notice how you store the desired operation "in passing"—pressing [K] immediately after the first time you do the operation. After that, the operation is implied. Whenever you press [=], the keystrokes stored in the **K** register will append that operation to whatever you have typed into the display.

You can do other operations via the **K** register, too, such as roots, powers, logs and percentages.

Try this: Discount each of these prices by 25%: 9.95 23.95 16.50 99.99

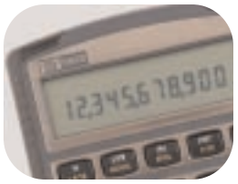
Solution:

9.95 [–] 25 [%] [K] [=] (Answer: **7.46**)

23.95 [=] (Answer: **17.96**)

16.5 [=] (Answer: **12.38**)

99.99 [=] (Answer: **74.99**)



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More Practice with Arithmetic and Math

With arithmetic, you need two numbers to get a result. With some other math functions, you're only working with one number.

Example: Find 22^2.

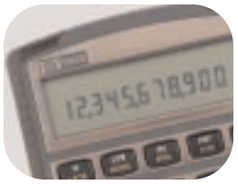
Solution: Of course, you could always use 22 ⊠ 22 ⊜. But you could instead press 22 [shift] [x^2].

Notice how, when you use a function that needs just one number, you key the number in first, then press the function.

Challenge: Find $\dfrac{(3 \times 10^7)\cdot LN(.5) + 10!}{-(e^{14.5})}$

Solution: The first number is in scientific notation (just another way to write 30 million).

3 [shift] [E] 7 ⊠ .5 [shift] [LN] ⊞ 10 [shift] [n!] ÷ 14.5 [shift] [e^x] [+/–] ⊜ Answer: **8.66**



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Questions: The HP 10BII provides keys to take the square of a number and the square root of a number, but how do you take the 3rd or 4th power of a number? Or, what if you want to take a cube (3rd) root, or a 4th root?

Answers: Suppose you want to calculate 5^4. Of course, $5^4 = 5 \cdot 5 \cdot 5 \cdot 5$, and you could do it with simple multiplication, via 5 ⊠ 5 ⊠ 5 ⊠ 5 =. (Answer: **625.00**)

But you can also do it with the y^x key: 5 y^x 4 =.

Likewise, to find 16^3, you could either press 16 ⊠ 16 ⊠ 16 = or 16 y^x 3 =. (Answer: **4,096.00**)

How about roots? How do you take the 4th root of 625?

As it turns out, the nth root of a number is simply that number raised to the $1/n$ power. That is, the 4th root of 625 is $625^{1/4}$ (or $625^{.25}$).

So you can use y^x for finding roots, too: 625 y^x 4 $1/x$ =
or: 625 y^x .25 = (Answer: **5.00**)

Likewise, to get the cube (3rd) root of 4,096, press 4096 y^x 3 $1/x$ = (Answer: **16.00**)