



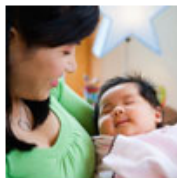
» [April showers bring May flowers and Scientific Calculators?](#)

April is a busy month: tax time and the semi-annual examinations for surveyors in the US. HP's Scientific Calculators are the tool of choice for these and other activities, not only in April, but all year!

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Your articles



» [Let's calculate the probable birth weight of your child](#)

Learn about descriptive statistics, variability and range and how to use your HP 39gs Graphing Calculator to help solve these and other types of equations.



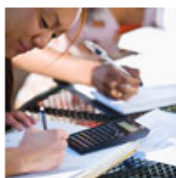
» [Why HP Calculators are so popular among Surveyors](#)

HP works with surveying companies to ensure that the HP calculators meet their needs. Learn the specific functions available on these calculators and why they stand out.



» [Credit Suisse benefits from HP Calculators](#)

See how one company uses HP Financial Calculators to challenge and reward their employees, and how your company can do the same.



» [Special newsletter discount offer of the month](#)

The HP 35s Scientific Calculator; it's powerful, reliable, approved for the NCEES FE/PE/FS/PS exams and has HP exclusive features such as RPN. And now, for this month only, it is 10% off for newsletter readers only.

Upcoming HP Calculator events

| Event | Dates - Location |
|-------------------------------|----------------------------------|
| NCTM National | April 9-12 - Salt Lake City, UT |
| ASEE | June 22-25 - Pittsburgh, PA |
| NECC | June 29-July 2 - San Antonio, TX |
| AP Annual | July 16-20 - Seattle, WA |
| WIPTe | October 15-16 - Westville, IN |
| Educause | October 28-31 - Orlando, FL |

RPN Tip #3

Learn to calculate the future value of the principle amount placed into a savings account with annual interest accruing. Get the calculator tip of the month.

[Read more »](#)

Volume 3
April 2008

Welcome to the third edition of the HP Solve newsletter. Learn calculation concepts, get advice to help you succeed in the office or the classroom, and be the first to find out about new HP calculating solutions and special offers.

Featured Calculator



» [HP 35s Scientific Calculator](#)

Scientific projects require accuracy, functionality and dependability for success and you'll find it all in the HP 35s Scientific Calculator. Get professional performance from your calculator.

[Learn more »](#)

HP Calculator Blog

Check out Wing Kin Cheung's blog, "The Calculating World with Wing and You."

[View blog »](#)

The Calculator Club

Join the Calculator Club and take advantage of:

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- HP Calculator fonts
- Custom calculator pouches
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April showers bring May flowers and Scientific Calculators?

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Everyone knows that April showers bring May flowers and taxes are due April 15. But maybe you did not know that in the engineering community, HP Scientific Calculators spring up as well? It is true. The National Council of Examiners for Engineering and Surveying (NCEES) administers its semi-annual examinations in April and October for engineering and surveying licensing boards representing all states and territories in the United States. In addition, colleges and universities focusing on science and engineering around the world are also heading into final examinations. NCEES and many colleges and universities around the world recommend HP Scientific Calculators to their students as the learning tool of choice for accurate and reliable results. And students are busy getting ready for the big day. So HP Scientific Calculators really do spring up in April (in addition to other months of the year).

Engineers are often on the go, solving complex problems, and are in need of a portable, reliable and accurate tool to get the job done. For 36 years, engineers have relied on HP for calculating solutions and recognize HP Calculators as a symbol of quality, reliability & craftsmanship for decades.

If you are an engineer, seeing the HP 35s and HP 35 side-by-side might give the feeling of nostalgia. Don't worry, you are not alone. We had fun making it too! The HP 35s pays tribute to its revered lineage with a classic design that is reminiscent of the original HP 35, including protective raised edges to protect the keys and tapered sides so that the calculator rests nicely in the palm of one's hand. The HP 35s is also HP's most advanced scientific programmable calculator, featuring ample memory for keystroke programming, equation solving and more than 800 storage registers; 100 built-in functions; and a large, two-line display with adjustable contrast to easily view entries. It is certainly the first choice of for science and engineering students, educators, and professionals.



2007



1972

Feature Calculator of the Month: HP 35s Scientific Calculator

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Get professional performance from HP's ultimate RPN scientific programmable calculator—ideal for engineers, surveyors, college students, scientists and medical professionals. Scientific projects require accuracy, functionality and dependability for success. The HP 35s scientific programmable calculator delivers them—and more—with features that include 30KB user memory, your choice of RPN [1] and algebraic entry-system logic, a convenient two-line display, and the time-saving HP Solve [2] application. Fun facts about the HP 35s Scientific Calculator:

- Born: July, 12th 2007

- The HP 35s' program-branching mechanism, namely the GTO and XEQ functions, direct program control to a program letter (A through Z) followed by a line number (000 through 999). This historically closely resembles that of the HP95C, a 1970s compact desktop programmable printing machine from the "TopCat" series which was cancelled just prior to its introduction.
- The HP 35s is the first new calculator in 9 years with HP's hallmark double-wide ENTER key. The last calculator before the HP 35s to have a double-wide ENTER key was the HP 48G+ introduced in 1998.
- One can store over 2300 full precision numbers in the 35s. [Click here](#) to learn more.
- You can drop your HP 35s onto a hard floor from a height of 4 feet without it coming to any harm. Don't do this on purpose, though!
- You can use the HP 35s as an algebraic calculator just like calculators from other makers. You can ALSO use it in HP's RPN mode, which is preferred by many engineers and financial experts. You can switch between these two modes as you like.
- The RPN mode of the HP 35s is a simpler version of the advanced RPL mode available on HP's top of the range models, the HP 48gII and the HP 50g.
- Algebraic mode is great when you want to type in an equation from a book or off a web page, then use the equation just once or lots of times.
- RPN mode is best when you want to work your way through a problem step-by-step. You can even go back to the previous step if you change your mind.
- The HP 35s key labels use an extra hard-wearing paint so they will not rub off after just a few months.
- Did you know that the HP 35s floats on mercury but sinks in beer?
- The HP 35s has the ability to adjust the contrast - a standard HP calculator feature, but one that few others provide.
- An HP 35s weighs almost exactly the same as 3 golf balls.
- Like HP's first handheld calculator, the HP-35, it will fit in a shirt pocket.
- Because it is black, an HP 35s can get very warm if left in the sun. The display will then be hard to read, but will recover fully once the calculator cools down.
- The HP 35s has 100 times as much memory as the original HP-35 calculator.
- To encourage exploration of the calculator by the user, the HP 35s does not give you a command to split a complex number into its real and imaginary parts. It leaves this as an exercise for the user, to be programmed using the SIN and COS functions. [Click here](#) to find out how that can be done; see Example 2.
- The HP 35s uses a new proprietary fraction algorithm that outperforms all of HP's competition. It is the only calculator in existence (excluding the HP 33s) that always returns the unique best fraction for the given input and settings (for denominators up to 4095).

Click here for more information about the [HP 35s Scientific Calculator](#).

1. Reverse Polish Notation (RPN) is an efficient data-entry system that can significantly reduce keystrokes.
2. HP Solve is a time-saving application that allows you to solve for any variable without rewriting your equation.

RPN Tip #3

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What will be the future value after a year for \$100 placed into a savings account if the earned interest is 7.5% APR (Annual Percentage Rate) and compounded monthly? You don't have a financial calculator and

you don't remember the log formula for such calculations. You do have an RPN calculator such as the HP 35s so you use the T register "constant" feature to calculate the value after 12 compounding periods.

First you calculate the interest rate per compounding period by dividing the APR 7.5% rate by 12. This is 0.625%. Convert the monthly rate to a decimal and add one. This is 1.00625.

Key this value, and press ENTER, ENTER, ENTER, 100 (the value in the account) and then press the multiply key 12 times to get a value of \$107.76. (107.763259886).

Click here to learn more about [RPN](#).

Let's calculate the probable birth weight of your child

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Here is another great exercise using your HP 39gs Graphing Calculator. Data are all around us. Your age, height, and weight provide data about you. The number of miles, how fast you travel, and the type of transportation are all data that describe your trip to or from school. One way we analyze data is through the use of descriptive statistics. We use the term descriptive statistics because we can compute numbers that describe a data set. The most common statistics are mean, median, mode, and range.

- **Mean:** add all the values in your data set and divide by the number of data points you have
- **Median:** once data are ordered from smallest to largest, find the middle data value. If the data set has an odd number of values, the median is the middle data point. If the data set has an even number of values, the median is found by adding the two data points in the middle and dividing by two.
- **Mode:** the most common value in the data set. If no value occurs more than once, there is no mode. If more than one value occurs most often, it is possible to have more than one mode.
- **Range:** describes how spread out the data is and is found by subtracting the lowest value from the highest value

Exercise 1

The birth weights from 11 of Donna's family members are given below. Each baby's weight has been converted from pounds and ounces to a decimal representation in pounds.

9.125 8.125 7.75 8.75 9.25 9.125 6.125 5.125 7.125 6.25 5.75

Find the mean, median and range.

To use the 39gs to find these values, start the Statistics Aplet. Press the NUM key to enter your data. If there are data that need to be cleared, press 2nd DEL and choose the data you would like to delete. Enter your data into C1. Make sure you see the 1VAR (instead of 2VAR) tab at the bottom of your screen. When you press STAT, you will see the descriptive statistics for the data set, except for range. However, you will see the lowest value and the highest value. You can press HOME and perform the subtraction to find the range.

Exercise 2

Now look at the weights of 11 children from Sharon's family. As you look at the data, think about predictions you would make about the mean, median and range compared to Donna's family.

6.6875 5.75 7.875 9.875 8.375 7.75 4.5625 5.5 7.75 6.875 11.5

Compute the mean, median and range. How do they compare with your predictions?

To enter the data into the 39gs, make sure you are still in the Statistics Applet and press NUM. You can enter the data for Sharon's family into C2. To make sure you can see the descriptive statistics for both data sets, press SYMB and check H2. Now when you go back to the NUM screen and press STAT, you will see the descriptive statistics for both sets of data.

Exercise 3

Compare the mean, median and range for the two data sets. What observations are you able to see?

Extension 1

Is it possible to have two data sets with the same mean, but different medians? Show how this could be accomplished or why it is not possible.

Extension 2

Is it possible to have two data sets with the same median, but different means? Show how this could be accomplished or why it is not possible.

Extension 3

Is it possible to have two data sets with the same range, but different means? Show how this could be accomplished or why it is not possible.

Teacher Notes

These activities focus on measures of centrality and spread. A series of exercises cover comparing different data sets whose mean or median are the same. This gives the class opportunities to note that very different data sets can have one measure of centrality the same but another one different, etc.

Glencoe Mathematics Series

As a treatment of mean, median, mode, and range, you can use this activity with any of the courses in *Texas Mathematics*. For example, in *Course 1*, use it in Chapter 2; in *Course 2*, use it with Chapter 9. Finally, in *Course 3*, use it in Chapter 9.

TEKS

The following TEKS can be found in this activity. The TEKS are listed in grade-level order, not the order in which they appear in the activity. Also, some of the TEKS statements are abbreviated or paraphrased here.

- 6.10B: identify mean, median, mode and range of a set of data
- 7.12A: choose among mean, median, mode or range to describe a set of data and justify choice
- 8.12A: select appropriate measure of central tendency or range to describe a set of data and justify
- 8.12C: select and use an appropriate representation for presenting and displaying data

| Activity | TEKS Covered |
|---------------|----------------------------|
| Exercise 1 | 6.10B |
| Exercise 2 | 6.10B, 7.12A, 8.12A, 8.12C |
| Extension 1-3 | 7.12A, 8.12A, 8.12C |

Overview

When the data is entered into the calculator, you should see the screen below. Make sure that 1VAR is chosen. If your screen shows 2VAR, simply press the key and the screen should change to 1VAR

| n | C1 | C2 | C3 | C4 |
|----|-------|--------|----|----|
| 7 | 6.125 | 4.5625 | | |
| 8 | 5.125 | 5.5 | | |
| 9 | 7.125 | 7.75 | | |
| 10 | 6.25 | 6.875 | | |
| 11 | 5.75 | 11.5 | | |
| 12 | | | | |

EDIT INS SORT BIG 1VAR STATS

On the calculator, you can see the descriptive statistics for the two data sets.

Notice that the sum of the data values and the number of data points are the same, which is what leads to the mean being the same.

| 1-VAR | H1 | H2 | |
|-------|----------|----------|--|
| ME | 11 | 11 | |
| TOTΣ | 82.5 | 82.5 | |
| MEANΣ | 7.5 | 7.5 | |
| PVARΣ | 2.059659 | 3.583097 | |
| SVARΣ | 2.265625 | 3.941406 | |
| PSDEV | 1.435151 | 1.892907 | |
| 11 | | | |

OK

| 1-VAR | H1 | H2 | |
|--------|----------|----------|--|
| SSDEV | 1.505199 | 1.985298 | |
| MINΣ | 5.125 | 4.5625 | |
| Q1 | 6.125 | 5.75 | |
| MEDIAN | 7.75 | 7.75 | |
| Q3 | 9.125 | 8.375 | |
| MAXΣ | 9.25 | 11.5 | |
| 9.25 | | | |

OK

The measures of variability (or dispersion) are different for the two data sets. Although we only looked at range here, the standard deviation and variance are also different. The term variability describes how “spread out” data values are. When all the values are pretty close to one another, the data have low variability (range, standard deviation, variance). When the data values are far apart from one another, there is high variability (range, standard deviation, variance). In addition to the range values being different for these data sets, you can look at the PVAR□ and SVAR□ and PSDEV and SSDEV on the calculator screens and see the differences in those values as well.

These are actual weights from two families. They are taken from larger data sets, and were very carefully selected so that the mean and median would be the same.

Answer Key

Exercise 1

Donna’s family:

mean = 7.5

median = 7.75

range = 4.125

Exercise 2

Sharon’s family

mean = 7.5

median = 7.75

range = 6.9375

Exercise 3

The mean and median are the same, but the ranges are different. Although the data sets look very different (mainly due to the range of data), these two measures of central tendency are the same which is usually an unexpected occurrence for many students.

Extension 1

It is possible to have the same mean, but different medians. Just because one measure of central tendency is the same for two data sets, it does not imply that all measures of measures of central tendency are all the same.

One way to show this is to use the existing data sets. If you subtract .5 from the median in one data set and add .5 (or any other value) to another value in that same data set, you keep the same sum and mean, but have a different median.

You can also create data sets where the totals of the data values are the same, but the middle values are not the same. Here's a simple example:

Data Set #1: 20 50 80 Mean = 50 and Median = 50

Data Set #2: 10 60 80 Mean = 50 and Median = 60

Extension 2

It is possible to have the same median, but different means. We can again use the existing data sets to illustrate. Recall the reason the means are the same is because the sum of the data points and the number of data points are the same. Simply change one value (other than the median) in one data set to get different means. You can also create two new data sets where the middle values are the same, but the sum of data points is different. Here's a simple example:

Data Set #1: 20 50 80 Mean = 50 and Median = 50

Data Set #2: 40 50 90 Mean = 60 and Median = 50

Extension 3

It is possible to have the same range, but different means. To ensure the same range, the data sets will have to have the same lowest and highest values. As with extension 2, to have different means, simply make sure the sum of the data points is different. Here's a simple example:

Data Set #1: 20 50 80 Mean = 50 and Range = 60

Data Set #2: 30 60 90 Mean = 60 and Range = 60

Why HP Calculators are so popular among Surveyors

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HP Scientific and Graphing calculators are extremely popular among the surveying community and the HP 33s and HP 35s are both approved for the NCEES Surveying exams (FS/PS). Our models are extremely powerful in their category. HP makes the only programmable scientific calculators (HP 33s and HP 35s) and the HP 50g graphing calculator has an SD card slot for additional memory making them very desirable for surveying professionals..

HP works with many surveying companies to ensure our products are ideal for their needs. For instance, we changed our manufacturing process on the HP 50g to better fit the screen for a surveying device. Here are some links to surveying companies that have products that work with our HP Calculators:

<http://pssllc.com/>

Professional Surveyor Magazine, the #1 surveyor's magazine, is currently doing a contest to give away one HP 35s per month to celebrate our 35th anniversary of creating the world's first handheld calculator:

<http://www.profsurv.com/>

HP provides FREE calculator training specific to our calculator models and specific exams. [Check out our training](#) and get prepared for the upcoming NCEES Surveyor exams!

| YEAR | PS exams | FS exams |
|------|------------------------|------------------------|
| 2008 | April 11 October 24 | April 12 October 25 |

Credit Suisse benefits from HP Calculators

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Ever wondered how your company could use HP calculators to deliver superior results and improve employee morale at the same time? Well the New York branch of Credit Suisse has figured it out and each year they continue to use HP calculators as an integral part of their Summer Intern Program. Every year Credit Suisse conducts a Summer Intern Program with approximately 130 summer analysts and 50 summer associates. Each intern selected into the program is immediately armed with an HP 17bII+ Financial Calculator. The summer analysts & associates go on to participate in a 10-week program comprised of eight days of technology and business training that is both challenging and rewarding – each day utilizing their HP 17bII+ Financial Calculator to its fullest. Credit Suisse believes this comprehensive training curriculum, along with the HP 17bII+, arms the interns with the financial and analytical tools they will need for their career at Credit Suisse.

During the summer program participants are provided the opportunity to work on deals within their group, gain hands-on experience, and work on all aspects of advising and transacting business for our clients. In some cases they are further divided into groups for Investment Banking and the Global Markets Solutions Group. The Investment Banking participants will analyze companies using financial modeling and valuation techniques, examine the impact of a transaction on a client's capital structure, and analyze the consequences of a merger or acquisition. Those in their GMSG program are placed directly onto a desk within a product area of the Global Markets Solutions Group. Summer program participants have the opportunity to develop their analytical skills by using various financial techniques, gain hands-on experience, and interact with both internal and external clientele.

Credit Suisse chose the HP 17bII+ Financial Calculator because it came highly recommended by their accounting and financial modeling/valuation vendors. They have been using the HP 17bII series calculator since the original model was first manufactured in 1990. They continue to choose the HP 17bII+ calculator as it allows the interns to make a seamless transition from the program into the financial industry. It is clear Credit Suisse believes in the HP 17bII+ calculator and will continue including it as part of their summer intern program.

For more information regarding our B2B calculating solutions, please logon to our [HP Calculator Club](#) and fill out our information request form.