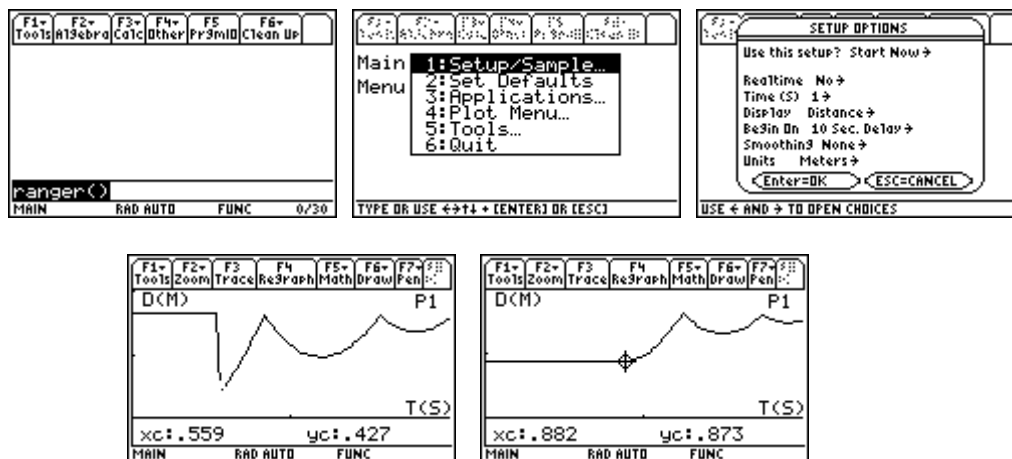


47 Ways To

In this investigation you and your team will explore the variations in measured data. Our goal is to come to know how well we know what we know.

- Using the TI-89, CBR, stopwatch, or other device, design an experiment that will allow you to measure the time it takes for a ball to fall from a set height (approximately 2.00 meters). If you use the RANGER program your settings and results might be as follows:



- Repeat the experiment from the same height 47 times and record the time for each drop in a list on your calculator. Record your times to the same place value (like to the nearest 0.01 seconds)
- Look at the values for the time in the list. How would you quantify the variance in these values?
- How long did it take for the ball to fall the set distance? What was the set distance?
- Calculate the Mean, Maximum, Minimum, and Standard Deviation for this set of sample data.
- Plot a Histogram of the data in your list. How does this graph support your answer to question #4?
- Do a T-Test on this data using the Theoretical value for the time (see Halliday/Resnick or Lab Two). Explain how well we know how long it takes the ball to fall the set distance.