

Elise Niedringhaus
Can Calculators Calculate Correctly?

I want to determine how the model and price of a calculator affects its accuracy and ascertain which calculator is the most accurate. 1. Research formulas to test calculators. The answers should have numbers with a lot of digits to the right of the decimal such as irrational numbers. This can cause a rounding error and prove the calculator is not completely accurate. 2. Test each calculator with all of the formulas, making sure that the calculators are in the correct mode (degrees or radians) and that they display the maximum number of digits to the right of the decimal point. 3. Find all guarded digits. 4. Compare the calculated answer to the correct answer. 5. Find the percent of error of each calculator and rank them from the most accurate to the least accurate. 6. Repeat numbers 2-5 with all the formulas. 7. Average the results of all the formulas in order to find the most accurate calculator and draw a conclusion. The data indicated that the most accurate calculator is the HP 10s. It had the smallest average percent of error. The next best average was the HP Smart Calc 300s. My conclusion from this experiment is that price has no correlation to the accuracy of a calculator. The things that accuracy depends on the most are the algorithms used and the number of significant digits within the calculator. The most accurate calculator, the HP 10s, was also one of the least expensive.