

Checking with your calculator SIDEBAR

Why do we need to know this?

Your calculator is a fabulous tool. It can support rusty arithmetic skills, of course. But it can do quite a bit more.

Whenever you use a calculator, remember that your answers may not be completely correct.

What should you know?

Here are some ways to check your answers with a calculator:

Simplification of a numerical expression: Enter the given numerical expression, then enter your simplified expression. Compare the calculator's decimal approximations. **If the decimal numbers are different, then you have made a mistake.** This method is not foolproof because it can't tell if you have completely simplified the expression. It is also possible that two different numbers would have the same calculator approximation, but that wouldn't happen often.

Checking solutions to equations: Even if your answer cannot be a calculator number, you can check it using the calculator. For example, if you have found that $\sqrt{3/17}$ is a solution to a particular equation, you can check it with your calculator. Your calculator will use decimal approximations, so its answer may not be exact, but it should be very close.

If you have a graphing calculator, you can do more:

Telling if two algebraic expressions are equivalent: Graph your two expressions as functions to confirm that they're the same. Put the given one in $Y1=$ and the simplified one in $Y2=$. You can choose different line types. Then graph them at the same time. **If the graphs are different, then the expressions are different and you have made a mistake.** This check method is not foolproof because your graphs might look identical even though the expressions are not the same. But this method will catch most errors.

Caution: Your teacher will let you know what uses of the calculator are allowed. Be sure to follow your teacher's rules. In particular, if you will be expected to solve problems without your calculator on tests, be sure you can do it that way on your homework.