Common mistakes on reading #3

Remarks on defining "general solution"

— The key point to made about what distinguishes a solution as general, is that it in some way contains *all* solutions to the given problem.

So, a decent definition for "general solution" would be:

A general solution to a differential equation is the collection of *all* solutions to the equation.

Remarks on defining types of equations:

– When you define a type of equation it is important to make sure that you are very specific about defining what form it must follow. For example, a separable equation is one that has the form dy/dx =f(x)*g(y), while a linear first order equation is one of the form a1(x) dy/dx + a0(x) y = b(x). Similarily, if defining a solution method, it is important to be clear about what *kinds* of equations the method is able to solve.

– Getting clear about these kinds of details in your definition will start the process of setting you up well for identifying when to use what method of solution when handed a random o.d.e. to solve.