MTH 302: Skill Quiz 12

This quiz contains the **second appearance** of Skill DE.5.

Instructions:

- If you had a "Success" mark on a skill from the first quiz, **do not do the problem for that skill again**. You only need one "Success" on each skill, then you're done.
- You should only be working on the skills that you **need** to work on (because you've never tried them, or you did and got "Retry") *and* you feel **ready** to work on.
- Make sure to consult the Standards for Student Work in MTH 302 document before starting on your work, so you're clear on what is expected and what constitutes a "successful" attempt. Also check the *Success criteria* below each problem.
- As before, you may hand-write your work on paper, hand-write it in a notes app, or type it up. But **please start a new page for each Skill**. If a Skill takes more than one page, that's OK, but **don't put two skills on the same page.**
- When you are ready to submit your work: **Scan** your handwritten work to a clear, legible, black-and-white PDF using a scanner or scanning app -- **one PDF per problem**. So if you are doing both problems, you will have two PDFs: one for Skill LA.1 and another for Skill LA.2 (all parts).
- Then, **upload each PDF to its designated folder** on Blackboard. For example the PDF for Skill LA.2 goes into the folder for Skill LA.2. **Please make sure you have put your work in the right folder, because work in the wrong folder significantly delays the grading process.**
- Make sure to **click "Submit"** after uploading each item, before exiting.

Foundational Skill DE.5

> ***DE.5: I can solve a linear, homogeneous second-order differential equation.***

Consider the differential equation:

$y'' - y' - 30y = 0$

(a) State the characteristic equation.

(b) Solve the characteristic equation and *show your work*.

(c) State the general solution to the differential equation.

Success criteria: The characteristic equation is correctly stated. The characteristic equation is solved correctly and the solutions clearly indicated, and all appropriate work is shown. The general solution to the DE is correctly stated and *is not merely the results of (b)*. One "simple" error is allowed but all work that follows from the error must be consistent with the error.