Please PRINT your name _____

No calculators, cell phones, computers, notes, etc.

Circle your answer. Make your work correct, complete and coherent.

Please take a picture of your quiz (for your records) just before you turn the quiz in. I will e-mail your grade and my comments to you. I will keep your quiz.

The quiz is worth 5 points. The solutions will be posted on my website later today.

Quiz 6, November 8, 2023

Find the general solution of $y^{(4)} - 8y^{(3)} + 16y'' = 0$.

Answer:

We look for solutions of the form $y = e^{rx}$. Plug $y = e^{rx}$ into the Differential Equation and obtain the characteristic equation

$$r^4 - 8r^3 + 16r^2 = 0$$
$$r^2(r^2 - 8r + 16) = 0$$
$$r^2(r-4)^2 = 0$$

So, $y = e^0$, $y = xe^0$, $y = e^{4x}$, and $y = xe^{4x}$ all are solutions of the differential equation.

The general solution of the Differential Equation is

$$\boxed{y = c_1 + c_2x + c_3e^{4x} + c_4xe^{4x}.}$$