

YOUR NAME: \_\_\_\_\_

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Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [6 points]

(a) Write  $z = -8$  in polar form.(b) Find the three complex cube roots of  $z$ .

(c) Find the general solution of the differential equation

$$y''' + 8y = 0.$$

2. [6 points] Find the general solution of the non-homogeneous differential equation

$$y^{(4)} - y''' - y'' + y' = t + 7.$$