Instructions. Show all work, with clear logical steps. No work or hard-to-follow work will lose points.

Problem 1. Solve the initial value problem

 $y' = kt^n, \qquad y(0) = 7.$

where k, n are constants and $n \neq -1$. [Notes: your answer will have both k's and n's in it.]

Problem 2. Say you brew coffee in your cozy 22°C dorm room at 100°C. After 5 minutes, it cools to 95°C. How much longer will it take to cool to 85°C? Approximate to two decimal places.