

MTH 3311 – Test #2
DUE - 11:59 PM; MARCH 30, 2020

Pat Rossi

Name _____

Directions: Show CLEARLY how you arrive at your answers.

1. Hey everybody – a while ago, I took a beer and an empty beer mug out of the freezer. The beer and the mug were at $28\text{ }^{\circ}\text{F}$ when they were removed from the freezer (just above freezing!) and I poured the beer into the mug and put it on a table. After 10 minutes, the temperature of the beer was $35\text{ }^{\circ}\text{F}$. If the temperature of the air in the room is maintained at a constant temperature of $70\text{ }^{\circ}\text{F}$,
 - (a) derive an equation for the temperature of the beer at any time $t \geq t_0$ (where $t_0 = 0\text{ s}$ is the time when the beer is first removed from the freezer.)
 - (b) At what time will the temperature of my beer be $40\text{ }^{\circ}\text{F}$?