NAME: ———————————————————— Panther ID: ———————————

Quiz 0 MAP 2302 - Summer B 2018

To receive credit you MUST SHOW ALL YOUR WORK. Answers which are not supported by work will not be considered.

1. (4 pts) Compute $\frac{dy}{dx}$ in each case:

(a) $y = x^2 \ln x$ 　　　　　　　　　　　　　　(b) $y = \sin^2(\sqrt{x})$

2. (4 pts) Compute each anti-derivative:

(a) $\displaystyle\int e^{\tan x} \sec^2 x \, dx$ 　　　　　　　　　　(b) $\displaystyle\int \frac{x+1}{x^2+1} \, dx$

3. (3 pts) Newton's Law of Cooling states that the rate of change of the temperature of a cooling body is proportional to the difference between the temperature of the body and the constant temperature of the surrounding medium. A potato that has been baking at $400°$F is taken out of the oven and is left to cool down in a room with (constant) temperature of $70°$F. Let $y(t)$ be the temperature of the potato t minutes after it was taken out of the oven. Set up a differential equation for $y(t)$ according to Newton's Law of Cooling. You do not have to solve the equation.