1. (10 points) Find the solution to
\[
\frac{dy}{dt} = t e^{t^2} \sec(y)
\]
y(0) = \pi/2
2. (10 pts) Find the solution to

\[ \frac{dy}{dt} + t^{-1}y = 4t^2 + 2 \]

\[ y(1) = 1 \]