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

1.) (6 points) Find the dimensions of the right circular cylinder of maximum volume that can be inscribed in a sphere of radius 16.

2.) (6 points) Evaluate the integral

$$\iint_R e^{x+y}\, dA,$$

where $R = \{(x, y) \mid 0 \leq x \leq \ln 3,\ 1 \leq y \leq \ln 5\}$.

3.) (6 points) Evaluate the integral

$$\int_0^2 \int_{y/2}^1 e^{x^2}\, dxdy$$

4.) (2 points) What's your favorite Dr. Seuss book?