Homework (analysis) set 5: integrals

1. Find integrals: a) $\int \frac{dx}{\sqrt{e^x - 1}}$; b) $\int x2^{-x}\, dx$.

2. Find integral: $\int \frac{5x^2 + 14x + 15}{x^3 + x^2 - 8x - 12}\, dx$

3. Evaluate integral $\int_0^1 (1 - x^2)\, dx$ regarding it as the limit of appropriate integral sum.

4. Compute the area bounded by the curve $y = \ln x$, the x-axis and the straight line $x = e$.

5. Draw the part of the graph of semicubical parabola $y^2 = x^3$ which lies between the lines $x = 0$ and $x = 4$. Compute the length of this part.

Give me the solutions not later than 16/01/2018, please.