

## N. 20

1. (3 points) Calculate the limit  $\lim_{x \rightarrow 0} \left( \ln(1 + x^2) \right)^{\arcsin x}$ .
2. (3 points) Find the integral  $\int \frac{x^3 + 1}{x^4 - 3x^2 - 4} dx$ .
3. (3 points) Calculate the definite integral  $\int_0^1 \frac{1}{\sqrt{x} + \sqrt[3]{x}} dx$ .
4. (3 points) Find the surface area of the body obtained by revolution of the curve  $y = e^x, x \in [0, 1]$  around the  $Ox$  axis.