5th Assignment - till 27th November 23:59

Find the domain of a function f, find its derivative f' and find domain of f':

1.
$$f(x) = x^{(x^2)} + \arcsin \frac{x^2}{x^2 + 1}$$

2.
$$f(x) = x^e \cdot \ln \frac{1}{\sqrt[4]{e^x + 1}}$$

3.
$$f(x) = \cot(\pi - 2x) + 3 \left(\cos \frac{1}{x} \right)^2$$