1 5 points

(a) Show that for any integer $n \neq 0$, x^n and $x^{1/n}$ $(x \geq 0)$ are the inverse function of each other.

(b) Using (a), Show that $\frac{d}{dx}x^{1/n} = \frac{1}{n}x^{\frac{1-n}{n}}$.

2 5 points

Find the derivative of

$$f(x) = (x^2 + 1)^x,$$

where $x \geq 0$.