Answer on Question #47175-Math-Calculus

The domain of the function f given by $f(x)$ equal to $\sqrt{\frac{x^2+2}{x^2-1}}$ Is $R\backslash\{1\}$.

Answer

It is false.

$$\mathrm{f(x)} = \sqrt{\frac{x^2+2}{x^2-1}}.$$

We must exclude not only point $x = 1$. Because

$$\frac{x^2+2}{x^2-1} = \frac{x^2+2}{(x-1)(x+1)} \to x \neq \pm 1.$$

And

$$\frac{x^2+2}{x^2-1} < 0, when\ |x| < 1.$$

So The domain of the function f is $(-\infty; -1) \cup (-1; 1) \cup (1; \infty)$ or which the same $R\backslash\{\pm 1\}$.