

Answer on question #84969 – Math – Calculus

Question

If $f(x)=\sqrt{x^2-1}$ and $y=f(x^2)$ find dy/dx

Solution

As $y(x) = f(x^2)$ is a composite function, $y'(x) = f'(x^2) \cdot (x^2)'$ according to the chain rule.
Thus,

$$y'(x) = \sqrt{(x^2)^2 - 1} \cdot 2x = 2x\sqrt{x^4 - 1}.$$

Answer: $y'(x) = 2x\sqrt{x^4 - 1}$.