Answer on Questions #47268 – Math – Calculus

$$y = \left(x + \frac{1}{x}\right)\left(x^2 - \frac{1}{x^2}\right)$$ differentiate w.r.t x

Solution:

$$y = x^3 - \frac{1}{x} + x - \frac{1}{x^3}$$

We use the facts that $(x^n)' = nx^{n-1}$ and

$$(f + g)'(x) = f'(x) + g'(x)$$

$$(f - g)'(x) = f'(x) - g'(x)$$

Apply them to y :

$$y'(x) = 3x^2 + \frac{1}{x^2} + 1 + \frac{3}{x^4}$$

Answer:

$$y'(x) = 3x^2 + \frac{1}{x^2} + 1 + \frac{3}{x^4}$$