Let's take derivative of
$f(x) = (\log_5(\sin(x)))^{\cos(x)} + \text{sh}(\text{arcctg}(x^2))$
Derivative:

$\frac{df}{dx} = (\log_5(\sin(x)))^{\cos(x)} \cdot (\ln(\log_5(\sin(x))) + \cos(x) \cdot \frac{\frac{\cos(x)}{\sin(x)} \cdot \ln(5)}{(\ln(5))^2 \over \log_5(\sin(x))}) + 2 \cdot \frac{(-1)}{(1+x^{2^2})} \cdot \text{ch}(\text{arcctg}(x^2))$