$$\left[\sin(\cos(\sin(\cos(x))))\right]' = \cos(\cos(\sin(\cos(x)))) \cdot (-\sin(\sin(\cos(x)))) \cdot \cos(\cos(x)) \cdot (-\sin(x)) \cdot 1$$

derivative of sine of cosine of sine of cosine of x

the most outer function is sine so first we have derivative of sine which is cosine

next we have cosine function and it's derivative is minus sine

then there is again sine function and it's derivative - cosine

next we have cosine function and it's derivative which is minus sine

$$\left[\arctan(1+x^2)\right]' = \frac{1}{1+(1+x^2)^2} \cdot 2x = \frac{2x}{1+1+2x^2+x^4} = \frac{2x}{x^4+2x^2+2}$$

derivative of arc tangent of one plus x squared

the outer function is arc tangent, it's derivative is one over one plus x squared, in our case x is one plus x squared, so we have one over one plus, open bracket, one plus x squared, close bracket, to the second power

then we have inner function which is one plus x squared, and it's derivative is two x

to simplify the answer we're calculating, open bracket, one plus x squared, close bracket, to the second power using short multiplication formula and we obtain: two x over one plus one plus two x squared plus x to the fourth power

our result should be clear, so the finale answer is two over x to the fourth power, plus two x squared plus two

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