

# "What to say in front of the blackboard" - a brief tutorial

Exercise: Calculate the derivative of  $\arcsin(\arccos(\arctg(x)))$

$$[\arcsin(\arccos(\arctg(x)))]' = \frac{1}{\sqrt{1-(\arccos(\arctg(x)))^2}} \cdot \left( -\frac{1}{\sqrt{1-(\arctg(x))^2}} \right) \cdot \frac{1}{1+x^2}$$

the derivative of arc sine  
of arc cosine of arc tangent  
of x

the most outer function  
is arc sine so first of  
all I'll write the  
derivative of it and  
it's one over the square  
root of one minus second  
power of arc cosine of  
arc tangent of x

next we have arc  
cosine function and  
its derivative is minus  
one over square root  
of one minus second  
power of arc  
tangent of x

finally the inner  
function of the  
arc sine is arc  
tangent of x  
and its derivative  
is one over the  
one plus x square

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