

April 29

#1 $h(x) = g(f(x))$, find $h'(x)$

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

#2

$f(x)$, $g(x)$ and their derivatives are continuous functions defined at the points below:

x	$f(x)$	$f'(x)$	$g(x)$	$g'(x)$
1	3	-2	7	-1
3	7	6	1	9
7	5	4	3	11

$h(x) = g(f(x))$, find $h'(x)$ when $x = 3$.

$$h'(3) = g'(f(3))f'(3) = g'(7)f'(3)$$

$$11(6) = 66$$

~~$$g'(3)f(3)f'(3) = 9(7)(6)$$~~

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Students will verbally explain how to find the derivative of exponential and log functions

(using the words: implicit, inverse, etc....)

function derivative

e^{4x+2}

$e^{()}$ $e^{()}$



$4x+2$ 4

$$\frac{d}{dx}(e^{4x+2}) = e^{(4x+2)}(4)$$

$$= 4e^{4x+2}$$

function derivative

$e^{\sin(3x)}$

$e^{()}$ $e^{()}$

$\sin()$ $\cos()$

$3x$ 3

$$\frac{d}{dx}(e^{\sin(3x)}) = e^{(\sin(3x))} \cos(3x)(3)$$

$$= 3e^{\sin(3x)} \cos(3x)$$



$\ln(4x^3-7x)$

$\ln()$ $\frac{1}{()}$



$4x^3-7x$ $12x^2-7$

$$\frac{d}{dx}(\ln(4x^3-7x)) = \frac{1}{4x^3-7x} (12x^2-7)$$

$$= \frac{12x^2-7}{4x^3-7x}$$

function derivative

$\ln(\sec(e^{5x}))$

$\ln()$ $\frac{1}{()}$

$\sec()$ $\sec() \tan()$

$e^{()}$ $e^{()}$

$5x$ 5

$$\frac{d}{dx}(\ln(\sec(e^{5x}))) = \frac{1}{\sec(e^{5x})} \sec(e^{5x}) \tan(e^{5x}) e^{5x}(5)$$

$$= \frac{\sec(e^{5x}) \tan(e^{5x}) e^{5x}(5)}{\sec(e^{5x})} = 5 \tan(e^{5x}) e^{5x}$$