



Bilkent University

Quiz # 03  
Math 101-Section 08 Calculus I  
17 October 2019, Thursday  
Instructor: Ali Sinan Sertöz  
**Solution Key**

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**Q-1)** Let  $f$  and  $g$  be functions differentiable on the whole real line. We have the following information about these functions:

$x$	$f(x)$	$g(x)$	$f'(x)$	$g'(x)$
0	4	2	-6	9
1	2	3	13	3
2	1	2	-1	11
3	4	3	5	-4
4	0	8	-17	7

(i)  $\left. \frac{d}{dx} \right|_{x=1} g(f(g(x))) = \boxed{105}$  (2 points)

(ii)  $\left. \frac{d}{dx} \right|_{x=1} f(g(f(x))) = \boxed{-143}$  (2 points)

(iii)  $\left. \frac{d}{dx} \right|_{x=2} g(f(g(x))) = \boxed{-33}$  (2 points)

(iv)  $\left. \frac{d}{dx} \right|_{x=2} f(g(f(x))) = \boxed{-15}$  (2 points)

(v)  $\left. \frac{d}{dx} \right|_{x=0} f(f(f(x))) = \boxed{-612}$  (2 points)