Name ... *Solution Key* ...

Quiz 4—Friday, February 28

x	1	2	3
$g(x)$	4	5	1
$g'(x)$	5	3	-2
$h(x)$	3	-1	4
$h'(x)$	2	1	3

1. (*3 points*) Two functions g and h have values as given in the table on the right. Evaluate (and simplify) the following derivatives.

a. If $f(x) = g(x) + h(x)$ then $f'(1) = g'(1) + h'(1) = 5 + 2 = 7$

b. If $V(x) = g(x)h(x)$ then $V'(2) = g'(2)h(2) + g(2)h'(2) = 3(-1) + 5 \cdot 1 = 2.$

c. If $W(x) = \frac{g(x)}{h(x)}$ then $W'(3) = \frac{h(3)g'(3) - g(3)h'(3)}{h(3)^2} = \frac{4(-2) - 1 \cdot 3}{4^2} = -\frac{11}{16}$

2. (*7 points*) Evaluate (but do not simplify) the derivative:

$$\frac{d}{dx}\left(\frac{e^x + \sin x}{x}\right) = \frac{x(e^x + \cos x) - (e^x + \sin x)}{x^2}$$