

1. [12 points] The table below gives several values of a differentiable function $f(x)$. Assume that both $f(x)$ and $f'(x)$ are invertible. Do not give approximations. If it is not possible to find the value exactly, write NOT POSSIBLE.

x	-3	-2	-1	0	1	2	3
$f(x)$	-8	-4	-1.2	0.5	1.4	1.8	2
$f'(x)$	5	3	2	1.2	0.5	0.3	0.1

- a. [2 points] Let $g(x) = 3f(x) + 4$. Find $g'(1)$.

Answer: $g'(1) =$ _____

- b. [2 points] Find $(f^{-1})'(2)$.

Answer: $(f^{-1})'(2) =$ _____

- c. [2 points] Let $h(x) = f(e^x)$. Find $h'(\ln 2)$.

Answer: $h'(\ln 2) =$ _____

- d. [2 points] Let $j(x) = e^{f(x)}$. Find $j'(-2)$.

Answer: $j'(-2) =$ _____

- e. [2 points] Let $k(x) = f(x)f(x-2)$. Find $k'(1)$.

Answer: $k'(1) =$ _____

- f. [2 points] Let $\ell(x) = \frac{f(x)}{f(x+3)}$. Find $\ell'(0)$.

Answer: $\ell'(0) =$ _____