

Differentiation Rules, with Tables

For each problem, you are given a table containing some values of differentiable functions $f(x)$, $g(x)$ and their derivatives. Use the table data and the rules of differentiation to solve each problem.

1)

x	$f(x)$	$f'(x)$	$g(x)$	$g'(x)$
1	2	1	1	2
2	3	0	3	0
3	2	-1	1	-2

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

2)

x	$f(x)$	$f'(x)$	$g(x)$	$g'(x)$
1	2	-1	1	1
2	1	$\frac{1}{2}$	2	1
3	3	2	3	1

 Given $h(x) = f(x) - g(x)$, find $h'(2)$

3)

x	$f(x)$	$f'(x)$	$g(x)$	$g'(x)$
1	2	-1	1	2
2	1	$\frac{1}{2}$	3	0
3	3	2	1	-2

 Given $h(x) = f(x) \cdot g(x)$, find $h'(3)$

4)

x	$f(x)$	$f'(x)$	$g(x)$	$g'(x)$
1	3	-1	2	-1
2	2	-1	1	0
3	1	-1	2	1

 Given $h(x) = \frac{f(x)}{g(x)}$, find $h'(3)$

5)

x	$f(x)$	$f'(x)$	$g(x)$	$g'(x)$
1	5	-1	1	2
2	4	-1	3	$\frac{3}{2}$
3	3	-1	4	1
4	2	-1	5	1
5	1	0	6	$-\frac{1}{2}$
6	2	1	4	-2

Part 1) Given $h_1(x) = f(x) + g(x)$, find $h_1'(2)$

Part 2) Given $h_2(x) = f(x) - g(x)$, find $h_2'(3)$

Part 3) Given $h_3(x) = f(x) \cdot g(x)$, find $h_3'(4)$

Part 4) Given $h_4(x) = \frac{f(x)}{g(x)}$, find $h_4'(2)$

Part 5) Given $h_5(x) = (f(x))^2$, find $h_5'(2)$

Part 6) Given $h_6(x) = f(g(x))$, find $h_6'(6)$