AP Calculus AB Name_____

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Tabular Derivatives Power, Product, Quotient

Date_____ Block____

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	1	2	2	2
2	3	$\frac{3}{2}$	4	2
3	4	$\frac{3}{2}$	6	$\frac{1}{2}$
4	6	0	5	$-\frac{3}{2}$
5	4	–2	3	$-\frac{3}{2}$
6	2	–2	2	–1

Part 1) Given $h_1(x) = f(x) + g(x)$, find $h_1'(4)$

Part 2) Given $h_2(x) = f(x) - g(x)$, find $h_2'(1)$

Part 3) Given $h_3(x) = f(x) \cdot g(x)$, find $h_3'(1)$

Part 4) Given $h_4(x) = \frac{f(x)}{g(x)}$, find $h_4'(3)$

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2)

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

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

Part 2) Given $h_2(x) = f(x) - g(x)$, find $h_2'(6)$

Part 3) Given $h_3(x) = f(x) \cdot g(x)$, find $h_3'(5)$

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

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3)

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

Part 1) Given $h_1(x) = f(x) + g(x)$, find $h_1'(3)$

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 $h_4'(2)$

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4)

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

Part 1) Given $h_1(x) = f(x) + g(x)$, find $h_1'(6)$

Part 2) Given $h_2(x) = f(x) - g(x)$, find $h_2'(6)$

Part 3) Given $h_3(x) = f(x) \cdot g(x)$, find $h_3'(2)$

Part 4) Given $h_4(x) = \frac{f(x)}{g(x)}$, find $h_4'(3)$

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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	1	2	2	2
2	3	$\frac{3}{2}$	4	2
3	4	$\frac{3}{2}$	6	$\frac{1}{2}$
4	6	0	5	$-\frac{3}{2}$
5	4	−2	3	$-\frac{3}{2}$
6	2	−2	2	−1

Part 1) Given $h_1(x) = f(x) + g(x)$, find $h_1'(4)$

Part 2) Given $h_2(x) = f(x) - g(x)$, find $h_2'(1)$

Part 3) Given $h_3(x) = f(x) \cdot g(x)$, find $h_3'(1)$

Part 4) Given $h_4(x) = \frac{f(x)}{g(x)}$, find $h_4'(3)$

$h_1'(4) = f'(4) + g'(4) = -\frac{3}{2}$

$h_2'(1) = f'(1) - g'(1) = 0$

$h_3'(1) = f(1) \cdot g'(1) + g(1) \cdot f'(1) = 6$

$h_4'(3) = \frac{g(3) \cdot f'(3) - f(3) \cdot g'(3)}{(g(3))^2} = \frac{7}{36}$

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2)

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

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

Part 2) Given $h_2(x) = f(x) - g(x)$, find $h_2'(6)$

Part 3) Given $h_3(x) = f(x) \cdot g(x)$, find $h_3'(5)$

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

$h_1'(1) = f'(1) + g'(1) = -3$

$h_2'(6) = f'(6) - g'(6) = -1$

$h_3'(5) = f(5) \cdot g'(5) + g(5) \cdot f'(5) = \frac{5}{2}$

$h_4'(2) = \frac{g(2) \cdot f'(2) - f(2) \cdot g'(2)}{(g(2))^2} = -\frac{11}{50}$

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3)

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

Part 1) Given $h_1(x) = f(x) + g(x)$, find $h_1'(3)$

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 $h_4'(2)$

$h_1'(3) = f'(3) + g'(3) = 0$

$h_2'(3) = f'(3) - g'(3) = -3$

$h_3'(4) = f(4) \cdot g'(4) + g(4) \cdot f'(4) = -8$

$h_4'(2) = \frac{g(2) \cdot f'(2) - f(2) \cdot g'(2)}{(g(2))^2} = -\frac{7}{6}$

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4)

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

Part 1) Given $h_1(x) = f(x) + g(x)$, find $h_1'(6)$

Part 2) Given $h_2(x) = f(x) - g(x)$, find $h_2'(6)$

Part 3) Given $h_3(x) = f(x) \cdot g(x)$, find $h_3'(2)$

Part 4) Given $h_4(x) = \frac{f(x)}{g(x)}$, find $h_4'(3)$

$h_1'(6) = f'(6) + g'(6) = 1$

$h_2'(6) = f'(6) - g'(6) = 3$

$h_3'(2) = f(2) \cdot g'(2) + g(2) \cdot f'(2) = 3$

$h_4'(3) = \frac{g(3) \cdot f'(3) - f(3) \cdot g'(3)}{(g(3))^2} = -\frac{21}{32}$

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