Derivatives from table **Name (Print):** _____

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1. Consider differentiable functions $f(x)$ and $g(x)$ which have the following values and derivatives:

x	-3	0	1	4	5
$f(x)$	-3	-3	-4	1	-3
$g(x)$	-3	1	3	-4	2
$f'(x)$	4	-3	-3	-4	2
$g'(x)$	-2	-1	-1	1	4

Based on the table above, find the following, if possible:

(a) (2 points) $(f+g)'(1)$

Solution: -4

(b) (2 points) $(f-g)'(1)$

Solution: -2

(c) (2 points) $(fg)'(-3)$

Solution: -6

(d) (2 points) $(f/g)'(0)$

Solution: -6

(e) (2 points) $(g/f)'(0)$

Solution: $\frac{2}{3}$

(f) (2 points) The average value of f on $[-3, 5]$

Solution: 0

2. Consider differentiable functions $f(x)$ and $g(x)$ which have the following values and derivatives:

x	-2	0	1	4	5
$f(x)$	-1	2	1	-4	4
$g(x)$	-4	-1	4	4	-4
$f'(x)$	3	-4	2	3	-3
$g'(x)$	1	1	-3	4	-4

Based on the table above, find the following, if possible:

(a) (2 points) $(f+g)'(4)$

Solution: 7

(b) (2 points) $(f-g)'(5)$

Solution: 1

(c) (2 points) $(fg)'(1)$

Solution: 5

(d) (2 points) $(f/g)'(0)$

Solution: 2

(e) (2 points) $(g/f)'(0)$

Solution: $\frac{-1}{2}$

(f) (2 points) The average value of f on $[-2, 5]$

Solution: $\frac{5}{7}$

3. Consider differentiable functions $f(x)$ and $g(x)$ which have the following values and derivatives:

x	-3	-2	0	2	6
$f(x)$	3	4	3	4	2
$g(x)$	-2	-3	-3	3	2
$f'(x)$	-1	-2	-3	3	-1
$g'(x)$	4	4	3	-1	-3

Based on the table above, find the following, if possible:

(a) (2 points) $(f+g)'(2)$

Solution: 2

(b) (2 points) $(f-g)'(0)$

Solution: -6

(c) (2 points) $(fg)'(2)$

Solution: 5

(d) (2 points) $(f/g)'(2)$

Solution: $\frac{13}{9}$

(e) (2 points) $(g/f)'(-3)$

Solution: $\frac{10}{9}$

(f) (2 points) The average value of f on $[-3, 6]$

Solution: $\frac{-1}{9}$

4. Consider differentiable functions $f(x)$ and $g(x)$ which have the following values and derivatives:

x	-2	-1	2	3	6
$f(x)$	3	3	-2	-1	-1
$g(x)$	-4	-1	-3	-3	-1
$f'(x)$	-1	0	4	1	-2
$g'(x)$	2	3	-4	1	0

Based on the table above, find the following, if possible:

(a) (2 points) $(f+g)'(-1)$

Solution: 3

(b) (2 points) $(f-g)'(-1)$

Solution: -3

(c) (2 points) $(fg)'(3)$

Solution: -4

(d) (2 points) $(f/g)'(-1)$

Solution: -9

(e) (2 points) $(g/f)'(2)$

Solution: 5

(f) (2 points) The average value of f on $[-2, 6]$

Solution: $\frac{-1}{2}$

5. Consider differentiable functions $f(x)$ and $g(x)$ which have the following values and derivatives:

x	-2	0	1	4	5
$f(x)$	-1	-4	2	-2	2
$g(x)$	-4	-4	-3	-4	1
$f'(x)$	-4	-2	-3	-4	0
$g'(x)$	-4	-2	-1	0	4

Based on the table above, find the following, if possible:

(a) (2 points) $(f+g)'(0)$

Solution: -4

(b) (2 points) $(f-g)'(0)$

Solution: 0

(c) (2 points) $(fg)'(-2)$

Solution: 20

(d) (2 points) $(f/g)'(4)$

Solution: 1

(e) (2 points) $(g/f)'(1)$

Solution: $\frac{-11}{4}$

(f) (2 points) The average value of f on $[-2, 5]$

Solution: $\frac{3}{7}$

6. Consider differentiable functions $f(x)$ and $g(x)$ which have the following values and derivatives:

x	-3	0	2	3	4
$f(x)$	-1	3	0	-3	2
$g(x)$	3	4	-4	-3	-4
$f'(x)$	1	-1	-2	-3	-3
$g'(x)$	0	4	-1	2	3

Based on the table above, find the following, if possible:

(a) (2 points) $(f+g)'(0)$

Solution: 3

(b) (2 points) $(f-g)'(-3)$

Solution: 1

(c) (2 points) $(fg)'(2)$

Solution: 8

(d) (2 points) $(f/g)'(-3)$

Solution: $\frac{1}{3}$

(e) (2 points) $(g/f)'(-3)$

Solution: -3

(f) (2 points) The average value of f on $[-3, 4]$

Solution: $\frac{3}{7}$

7. Consider differentiable functions $f(x)$ and $g(x)$ which have the following values and derivatives:

x	-4	-1	2	3	4
$f(x)$	-3	-2	-1	1	3
$g(x)$	-2	-2	-1	-1	0
$f'(x)$	-3	1	-1	-1	4
$g'(x)$	4	0	4	-4	1

Based on the table above, find the following, if possible:

(a) (2 points) $(f+g)'(2)$

Solution: 3

(b) (2 points) $(f-g)'(-4)$

Solution: -7

(c) (2 points) $(fg)'(4)$

Solution: 3

(d) (2 points) $(f/g)'(-4)$

Solution: $\frac{9}{2}$

(e) (2 points) $(g/f)'(-1)$

Solution: $\frac{1}{2}$

(f) (2 points) The average value of f on $[-4, 4]$

Solution: $\frac{3}{4}$

8. Consider differentiable functions $f(x)$ and $g(x)$ which have the following values and derivatives:

x	-4	-3	-1	4	6
$f(x)$	1	-4	-4	0	1
$g(x)$	2	-2	-2	-4	2
$f'(x)$	1	-3	-2	-4	-3
$g'(x)$	2	1	3	4	2

Based on the table above, find the following, if possible:

(a) (2 points) $(f+g)'(6)$

Solution: -1

(b) (2 points) $(f-g)'(-4)$

Solution: -1

(c) (2 points) $(fg)'(-1)$

Solution: -8

(d) (2 points) $(f/g)'(4)$

Solution: 1

(e) (2 points) $(g/f)'(-1)$

Solution: -1

(f) (2 points) The average value of f on $[-4, 6]$

Solution: 0

9. Consider differentiable functions $f(x)$ and $g(x)$ which have the following values and derivatives:

x	-4	-3	-1	3	6
$f(x)$	-2	-1	2	2	-1
$g(x)$	2	3	0	2	1
$f'(x)$	-1	1	-2	-3	-3
$g'(x)$	0	-2	4	-2	3

Based on the table above, find the following, if possible:

(a) (2 points) $(f+g)'(-1)$

Solution: 2

(b) (2 points) $(f-g)'(-3)$

Solution: 3

(c) (2 points) $(fg)'(-3)$

Solution: 5

(d) (2 points) $(f/g)'(3)$

Solution: $\frac{-1}{2}$

(e) (2 points) $(g/f)'(-4)$

Solution: $\frac{1}{2}$

(f) (2 points) The average value of f on $[-4, 6]$

Solution: $\frac{1}{10}$

10. Consider differentiable functions $f(x)$ and $g(x)$ which have the following values and derivatives:

x	-2	-1	2	3	5
$f(x)$	-4	-3	0	3	3
$g(x)$	-3	3	1	0	3
$f'(x)$	4	-2	3	3	3
$g'(x)$	-1	-2	-1	0	4

Based on the table above, find the following, if possible:

(a) (2 points) $(f+g)'(-1)$

Solution: -4

(b) (2 points) $(f-g)'(5)$

Solution: -1

(c) (2 points) $(fg)'(5)$

Solution: 21

(d) (2 points) $(f/g)'(3)$

Solution: Does not exist

(e) (2 points) $(g/f)'(3)$

Solution: 0

(f) (2 points) The average value of f on $[-2, 5]$

Solution: 1