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

---

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

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

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

(a) (2 points) $(f+g)'(5)$

Solution: -1

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

Solution: 4

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

Solution: -3

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

Solution: -4

(e) (2 points) $(g/f)'(5)$

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

(f) (2 points) The average value of f on $[-4, 5]$

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

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

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

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

(a) (2 points) $(f+g)'(5)$

Solution: -1

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

Solution: 4

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

Solution: 3

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

Solution: -2

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

Solution: 2

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

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

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

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

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

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

Solution: -5

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

Solution: 1

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

Solution: -9

(d) (2 points) $(f/g)'(5)$

Solution: Does not exist

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

Solution: $\frac{-5}{4}$

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

Solution: $\frac{-2}{7}$

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

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

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

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

Solution: -4

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

Solution: -3

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

Solution: 8

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

Solution: 5

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

Solution: $\frac{-5}{4}$

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

Solution: $\frac{3}{8}$

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

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

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

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

Solution: -4

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

Solution: -3

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

Solution: -3

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

Solution: -2

(e) (2 points) $(g/f)'(5)$

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

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

Solution: 0

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

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

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

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

Solution: -5

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

Solution: 4

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

Solution: -4

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

Solution: 5

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

Solution: $\frac{-5}{4}$

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

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

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

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

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

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

Solution: -6

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

Solution: 1

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

Solution: -9

(d) (2 points) $(f/g)'(5)$

Solution: Does not exist

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

Solution: $\frac{-5}{4}$

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

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

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

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

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

(a) (2 points) $(f+g)'(5)$

Solution: -1

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

Solution: 4

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

Solution: -9

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

Solution: 5

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

Solution: 3

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

Solution: $\frac{1}{4}$

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

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

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

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

Solution: -6

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

Solution: -3

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

Solution: 8

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

Solution: -2

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

Solution: 3

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

Solution: 0

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

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

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

(a) (2 points) $(f+g)'(5)$

Solution: -1

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

Solution: 1

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

Solution: 3

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

Solution: -2

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

Solution: 2

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

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

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

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

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

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

Solution: -4

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

Solution: -2

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

Solution: -9

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

Solution: 5

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

Solution: 2

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

Solution: 0

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

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

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

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

Solution: -5

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

Solution: -3

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

Solution: -4

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

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

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

Solution: 2

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

Solution: $\frac{3}{8}$

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

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

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

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

Solution: -5

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

Solution: 1

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

Solution: 8

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

Solution: 5

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

Solution: Does not exist

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

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

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

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

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

(a) (2 points) $(f+g)'(5)$

Solution: -1

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

Solution: -2

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

Solution: -9

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

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

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

Solution: 3

(f) (2 points) The average value of f on $[-4, 5]$

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

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

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

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

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

Solution: -4

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

Solution: -3

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

Solution: -3

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

Solution: 5

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

Solution: Does not exist

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

Solution: $\frac{-2}{7}$

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

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

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

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

Solution: -3

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

Solution: 4

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

Solution: 8

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

Solution: -4

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

Solution: Does not exist

(f) (2 points) The average value of f on $[-4, 5]$

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

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

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

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

(a) (2 points) $(f+g)'(5)$

Solution: -1

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

Solution: 1

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

Solution: 8

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

Solution: -2

(e) (2 points) $(g/f)'(5)$

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

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

Solution: 0

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

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

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

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

Solution: -6

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

Solution: -2

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

Solution: 3

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

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

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

Solution: 3

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

Solution: $\frac{-1}{7}$

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

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

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

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

Solution: -5

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

Solution: 1

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

Solution: 3

(d) (2 points) $(f/g)'(5)$

Solution: Does not exist

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

Solution: $\frac{-5}{4}$

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

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

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

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

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

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

Solution: -6

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

Solution: -3

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

Solution: -9

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

Solution: -2

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

Solution: Does not exist

(f) (2 points) The average value of f on $[-4, 5]$

Solution: $\frac{8}{9}$

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

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

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

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

Solution: -4

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

Solution: -2

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

Solution: -9

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

Solution: -2

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

Solution: 3

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

Solution: $\frac{1}{5}$

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

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

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

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

Solution: -5

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

Solution: 1

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

Solution: 8

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

Solution: 5

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

Solution: Does not exist

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

Solution: 0

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

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

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

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

Solution: -5

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

Solution: 1

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

Solution: -9

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

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

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

Solution: 2

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

Solution: 1

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

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

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

(a) (2 points) $(f+g)'(5)$

Solution: -1

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

Solution: 4

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

Solution: 8

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

Solution: 5

(e) (2 points) $(g/f)'(5)$

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

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

Solution: $\frac{-4}{5}$

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

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

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

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

Solution: -4

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

Solution: 1

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

Solution: 3

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

Solution: -2

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

Solution: $\frac{-5}{4}$

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

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

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

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

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

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

Solution: -3

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

Solution: 4

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

Solution: 3

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

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

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

Solution: 2

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

Solution: $\frac{-8}{9}$

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

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

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

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

Solution: -3

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

Solution: -3

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

Solution: 3

(d) (2 points) $(f/g)'(5)$

Solution: Does not exist

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

Solution: $\frac{-5}{4}$

(f) (2 points) The average value of f on $[-4, 5]$

Solution: $\frac{-5}{9}$

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

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

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

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

Solution: -4

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

Solution: -3

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

Solution: 8

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

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

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

Solution: 3

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

Solution: $\frac{8}{7}$

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

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

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

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

Solution: -5

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

Solution: 4

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

Solution: -4

(d) (2 points) $(f/g)'(5)$

Solution: Does not exist

(e) (2 points) $(g/f)'(5)$

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

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

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

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

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

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

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

Solution: -6

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

Solution: 1

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

Solution: -4

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

Solution: 5

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

Solution: 2

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

Solution: $\frac{-2}{7}$

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

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

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

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

Solution: -4

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

Solution: -3

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

Solution: 3

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

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

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

Solution: 3

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

Solution: $\frac{2}{5}$

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

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

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

(a) (2 points) $(f+g)'(5)$

Solution: -1

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

Solution: -2

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

Solution: -3

(d) (2 points) $(f/g)'(5)$

Solution: Does not exist

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

Solution: $\frac{-5}{4}$

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

Solution: $\frac{-1}{6}$

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

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

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

(a) (2 points) $(f+g)'(5)$

Solution: -1

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

Solution: 1

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

Solution: -9

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

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

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

Solution: Does not exist

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

Solution: $\frac{-1}{8}$

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

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

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

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

Solution: -3

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

Solution: 1

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

Solution: 3

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

Solution: -4

(e) (2 points) $(g/f)'(5)$

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

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

Solution: $\frac{-4}{7}$

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

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

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

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

Solution: -4

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

Solution: 1

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

Solution: -4

(d) (2 points) $(f/g)'(5)$

Solution: Does not exist

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

Solution: Does not exist

(f) (2 points) The average value of f on $[-4, 5]$

Solution: 0

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

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

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

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

Solution: -3

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

Solution: 4

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

Solution: 3

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

Solution: 5

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

Solution: Does not exist

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

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

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

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

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

(a) (2 points) $(f+g)'(5)$

Solution: -1

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

Solution: 4

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

Solution: 3

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

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

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

Solution: 2

(f) (2 points) The average value of f on $[-4, 5]$

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

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

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

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

(a) (2 points) $(f+g)'(5)$

Solution: -1

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

Solution: 1

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

Solution: -4

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

Solution: 5

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

Solution: 2

(f) (2 points) The average value of f on $[-4, 5]$

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

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

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

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

(a) (2 points) $(f+g)'(5)$

Solution: -1

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

Solution: 1

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

Solution: -4

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

Solution: 5

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

Solution: 2

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

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

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

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

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

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

Solution: -6

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

Solution: -2

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

Solution: -3

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

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

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

Solution: Does not exist

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

Solution: $\frac{1}{8}$

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

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

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

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

Solution: -3

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

Solution: -2

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

Solution: 3

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

Solution: -2

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

Solution: Does not exist

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

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

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

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

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

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

Solution: -6

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

Solution: 1

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

Solution: -3

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

Solution: -2

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

Solution: 2

(f) (2 points) The average value of f on $[-4, 5]$

Solution: $\frac{-7}{9}$

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

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

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

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

Solution: -5

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

Solution: 1

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

Solution: 3

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

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

(e) (2 points) $(g/f)'(5)$

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

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

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

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

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

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

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

Solution: -3

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

Solution: 1

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

Solution: -3

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

Solution: 5

(e) (2 points) $(g/f)'(5)$

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

(f) (2 points) The average value of f on $[-4, 5]$

Solution: $\frac{-8}{9}$

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

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

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

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

Solution: -5

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

Solution: -2

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

Solution: 8

(d) (2 points) $(f/g)'(5)$

Solution: Does not exist

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

Solution: $\frac{-5}{4}$

(f) (2 points) The average value of f on $[-4, 5]$

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

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

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

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

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

Solution: -4

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

Solution: 1

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

Solution: -3

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

Solution: -4

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

Solution: $\frac{-5}{4}$

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

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

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

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

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

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

Solution: -6

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

Solution: -3

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

Solution: 8

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

Solution: 5

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

Solution: 3

(f) (2 points) The average value of f on $[-4, 5]$

Solution: $\frac{-4}{9}$

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

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

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

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

Solution: -5

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

Solution: 1

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

Solution: 3

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

Solution: -2

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

Solution: Does not exist

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

Solution: 0

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

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

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

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

Solution: -6

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

Solution: 4

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

Solution: -3

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

Solution: -4

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

Solution: $\frac{-5}{4}$

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

Solution: $\frac{-1}{8}$

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

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

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

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

Solution: -4

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

Solution: 4

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

Solution: -4

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

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

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

Solution: 2

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

Solution: $\frac{1}{5}$