For #1-2 let **

I. Find the left-hand and right hand sums on the interval with 4 intervals. Show all work. Then find the answer on your calculator.

1. Left - hand sum: \_\_\_\_\_\_\_\_\_\_\_\_\_ 2. Right- hand sum:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Calculator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

II. Find the indefinite integral of the following. Show all work!

3. 4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 6. If

III. Use the following values to evaluate #7-9

7. 8. 9.

IV. Use the Fundamental Theorem of Calculus to evaluate the following definite integrals:

10. 11. 12.

V. Find the indefinite integral using U-substitution:

 13. 14.

 15.

VI. Use the following to answer questions #16-23

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

16. .. Find y’ 17. Find f’(x).

18. Find y’. 19. find y’

20. 21.

22. 23.

VII. Sketch the area bounded by the graphs of the functions and find the area of the region. Find the integral and show all work for full credit!

24.

25.



26. Find the volume of the solid bounded by the graphs and the as described below. All cross-sections are perpendicular to the

a) Cross sections are squares.

b) Cross-sections are rectangles with a height of .

27. Find the volume of the solid formed by revolving the region bounded by the graph(s) of the equation(s) about the using the disk method.

(a)

(b)

28. Find the volume of the solid formed by revolving the region bounded by the graph(s) of the equation(s) washer method.

(a)

(b) *revolve about the y- axis*

(1) Left-sum: 3.75 (2) Right-Sum: 5.75, Calc:4.67 (3) (4) (5) (6) (7) 0 (8) 30 (9)48

(10) (11) (12) 2 (13) (14) (15) (16). (17) (18)

(19) (20) (21) (22) (23) (24) (26a) (26b) (27a) 25.13

(27b) 2.09 (28a) 33.51 (28b) 50.27