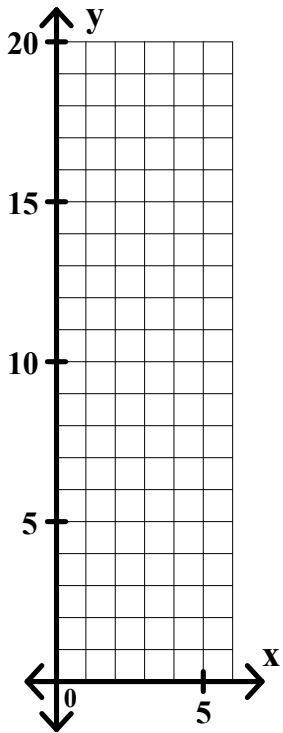


Calculus Class Worksheet #4 Unit 10 page 1

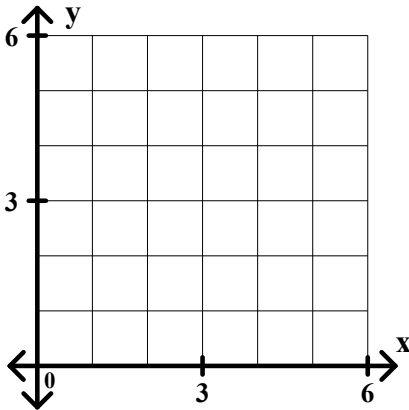
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Sketch the region described in each problem and find its area (3 significant digits).

1. The region is bounded by the x-axis, the lines  $x = 1$  and  $x = 4$ , and the graph of the function  $f(x) = 3^{0.5x}$ .



2. The region is bounded by the x-axis, the lines  $x = 1$  and  $x = 2e$ , and the graph of the function  $f(x) = 3/x$ .



## Calculus Class Worksheet #4 Unit 10 page 2

Solve the following problems. (Round irrational solutions to 3 significant digits.)

3. A particle moves on a straight line in such a way that its velocity is given by the function  $v = t + \frac{2}{t+1}$ , where  $0 \leq t \leq 10$ . How far is the particle from its starting point after 8 seconds?

(Assume the units for the velocity is centimeters per second.)

4. Find the average value of the function  $y = 6/x$  from  $x = 1$  to  $x = 6$ .

5. Find the average value of the function  $y = \cos x$  from  $x = 0$  to  $x = \pi/2$ .

## Calculus Class Worksheet #4 Unit 10 page 3

Solve the following problems. (Round irrational solutions to 3 significant digits.)

6. Find the equation (slope-intercept form) of the line that is tangent to the graph of  $f(x) = \ln x$  at the point on the graph where  $x = e^2$ .

7. Find the equation (slope-intercept form) of the line that is tangent to the graph of  $f(x) = \cos x$  at the point on the graph where  $x = \pi/3$ .

8. A rectangle has one side on the  $x$ -axis, one side on the  $y$ -axis and one vertex in the first quadrant on the graph of  $y = 5 - \ln(x^2)$ . What is the maximum area of the rectangle?