

Calculus Worksheet #1 Unit 3

Each of the following represents the area of a region bounded by the x-axis, the lines $x = a$ and $x = b$, and the function $y = f(x)$. In each case you are to sketch the region and approximate its area using S_L , S_U , and S_M .

Show your sketch and all of your work neatly organized on graph paper. In each case the exact area is given for comparison to your approximations. For each of the problems use $n = 5$.

1. $\int_1^4 x^2 dx$

(A = 21)

$S_L =$ _____

$S_U =$ _____

$S_M =$ _____

2. $\int_1^{16} \sqrt{x} dx$

(A = 42)

$S_L =$ _____

$S_U =$ _____

$S_M =$ _____

3. $\int_2^6 \frac{x^2}{4} dx$

(A = 52/3)

$S_L =$ _____

$S_U =$ _____

$S_M =$ _____

4. $\int_0^5 (2x + 1) dx$

(A = 30)

$S_L =$ _____

$S_U =$ _____

$S_M =$ _____