



## **Problem Set 27: Riemann Sums**

Find the left, right, and midpoint Riemann sums.

1.  $f(x) = 4x - x^2$  from  $x = 2$  to  $x = 5$  with 3 rectangles of equal width.

# AP Calculus AB – Unit 5

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2.  $g(x) = 2x + 1$  on the interval  $[-1, 2]$  with 6 rectangles of equal width.

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For problems 3 and 4, find the left and right Riemann sums (not midpoint), and then state whether the Riemann sum is an overestimate or an underestimate.

3.  $h(x) = x^3$  on the interval  $[-1, 2]$  with 6 rectangles of equal width.

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4.  $k(x) = -x^2 + 5$  from  $x = -3$  to  $x = 0$  with 4 rectangles of equal width.

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5. Use the table of values to find the left and right Riemann sums for  $f(x)$  over  $[1, 12]$ . For each Riemann sum, use 3 rectangles of non-uniform length.

$x$	1	5	8	12
$f(x)$	4	1	-2	-5

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6. Use the table of values to find the left and right Riemann sums for  $f(x)$  over  $[-2, 7]$ . For each Riemann sum, use 4 rectangles of non-uniform length.

$x$	-2	0	1	4	7
$f(x)$	1	6	3	-2	1