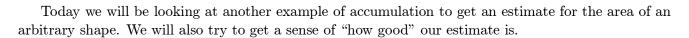
Class 3: Monday January 29 Riemann Sums and Error Stacks



We will use $Riemann\ Sums$ to approximate the area "under the curves" in the figures. We will use $Error\ Stacks$ to bound the error of our approximation.

Riemann Sums and Error Stacks

• On the interval between x=4 and x=13, the function f(x) is decreasing. f(4)=212 and f(13)=-8. Find the size of Δx needed to ensure that any Riemann sum using that Δx is within 0.1 of the actual value. Then find the number of subintervals n needed.

• On the interval between x=-3 and x=17, the function f(x) is increasing. f(-3)=4 and f(17)=7. Find the size of Δx needed to ensure that any Riemann sum using that Δx is within 0.1 of the actual value. Then find the number of subintervals n needed.

• On the interval between x = -4 and x = 4, the function f(x) is first increasing, then decreasing. It reaches its maximum at x = 0. f(-4) = f(4) = -1 and f(0) = 10. Find the size of Δx needed to ensure that any Riemann sum using that Δx is within 0.1 of the actual value. Then find the number of subintervals n needed.