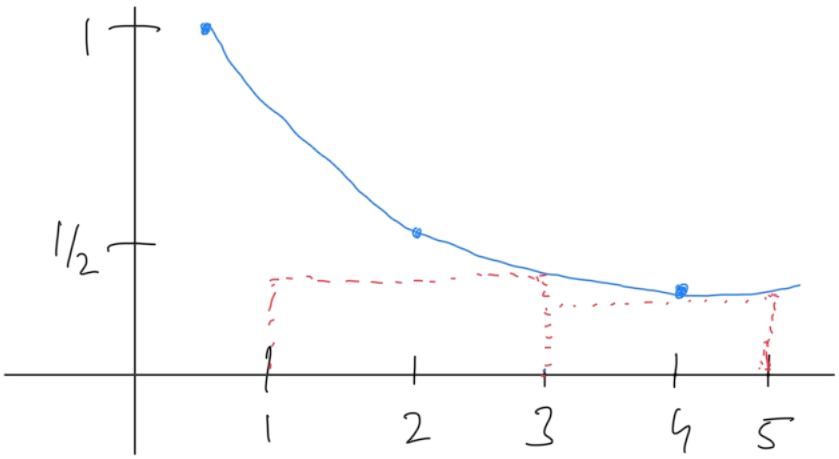
5.2 – The Definite Integral (and review of Riemann sums)

Consider the function on the interval [1, 5]

Ex) $f(x) = \frac{1}{x}$

a) Sketch the graph on the interval.



b) Estimate the area under the graph of the function using the **right endpoints** with two rectangles of equal width. We'll call this R_2. Is this an overestimation or an underestimation?

rectangle width : $\frac{b-a}{n} = \frac{5-1}{2} = 2 = \Delta x$

rectangle height : function value on the right side of rectangle

$A = \underset{w}{2} \cdot \underset{h}{f(3)} + \underset{w}{2} \cdot \underset{h}{f(5)}$

$= 2 \cdot \frac{1}{3} + 2 \cdot \frac{1}{5} = \frac{16}{15}$