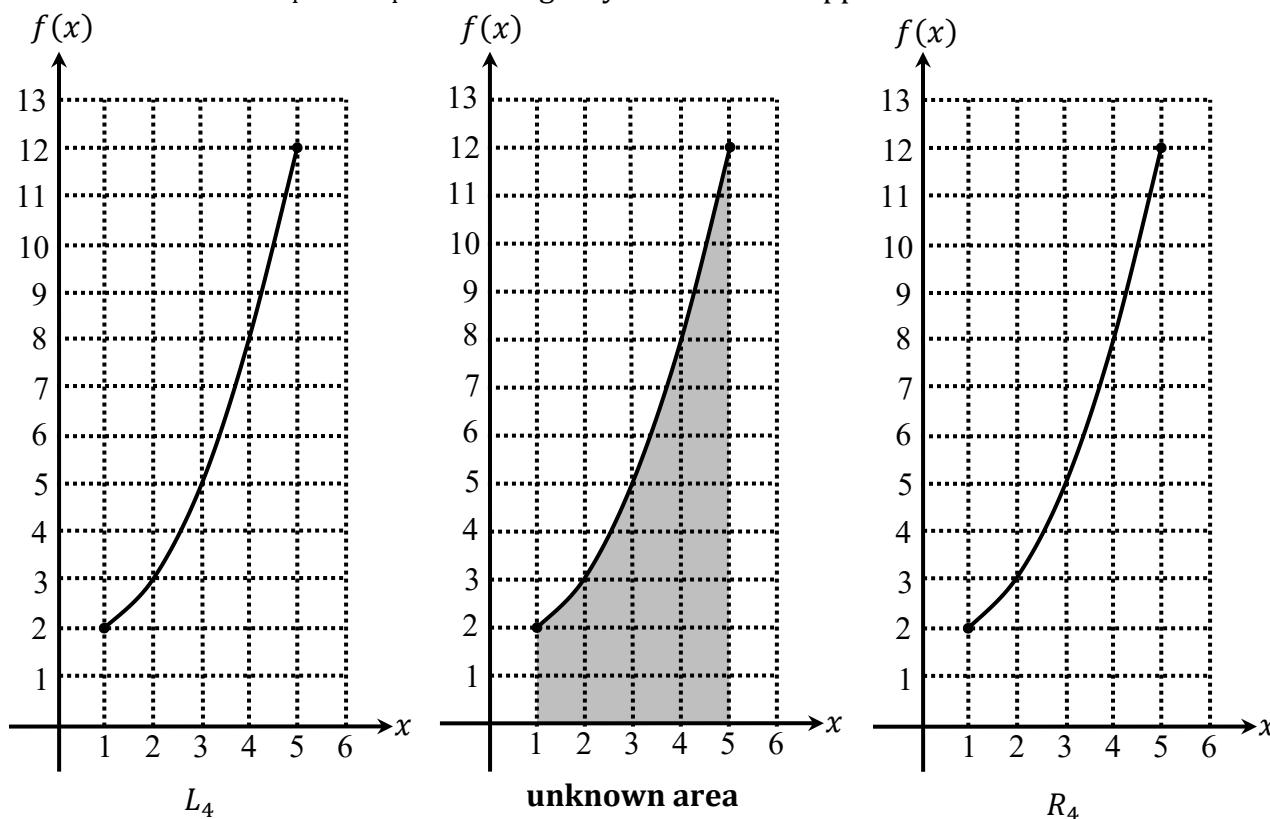# Class Drill: Estimating the Area Under a Graph by Using Riemann Sums

The goal is to estimate the shaded area in the middle figure. You will do this by finding the values of the Riemann sums L_4 and R_4. This will give you lower and upper bounds for the shaded area.

L_4 unknown area R_4

(A) Draw in the rectangles for the left sum L_4.

(B) Find the value of L_4.

(C) Draw in the rectangles for the right sum R_4.

(D) Find the value of R_4.

(E) Use the values from questions (B)and (D) to build a true inequality

_____ < **unknown area** < _____

The goal is to find approximations for the signed area between the graph of the function $f(x) = \frac{1}{x}$ and the x axis on the interval $[1,7]$ by computing Left and Right Riemann Sums with 3 rectangles. That is, find values for L_3 and R_3. Show all details clearly. (Hand calculations! No calculators or cell phones!)