

**Problem 1.** Let  $f : [0, 3] \rightarrow \mathbb{R}$  be given by  $f(x) = x^2$ . Let  $n = 5$ .

(a) Compute the partition  $P$  of  $[0, 3]$  divided into  $n$  subintervals.

(b) Compute the left Riemann sum  $L$  of  $f$  on  $P$ . Do not use a calculator.

(c) Compute the right Riemann sum  $R$  of  $f$  on  $P$ . Do not use a calculator.

(d) Which is bigger,  $L$  or  $R$ ? Why? Use these two number to estimate the area under the curve.

**Problem 2.** Let  $f : [1, 4] \rightarrow \mathbb{R}$  be given by  $f(x) = \sqrt{x}$ . Let  $n = 6$ .

(a) Compute the partition  $P$  of  $[1, 4]$  divided into  $n$  subintervals.

(b) Compute the left Riemann sum  $L$  of  $f$  on  $P$ . Use a calculator.

(c) Compute the right Riemann sum  $R$  of  $f$  on  $P$ . Use a calculator.

(d) Which is bigger,  $L$  or  $R$ ? Why? Use these two number to estimate the area under the curve.