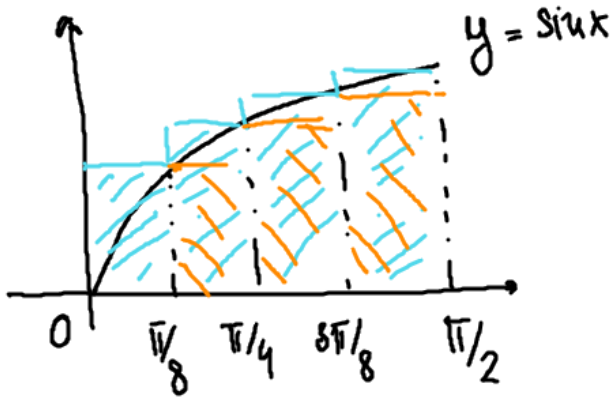
Exempel 1: $f(x) = \sin x$, $\left[0, \frac{\pi}{2}\right]$

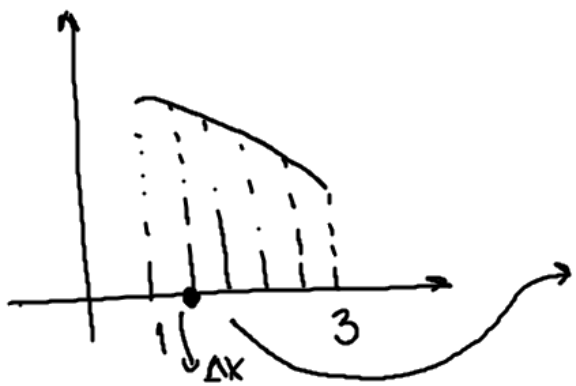


$$R_4 = \frac{\pi}{8} \cdot \sin\left(\frac{\pi}{8}\right) + \frac{\pi}{8} \cdot \sin\left(\frac{\pi}{4}\right) + \frac{\pi}{8} \cdot \sin\left(\frac{3\pi}{8}\right) + \frac{\pi}{8} \sin\left(\frac{\pi}{2}\right)$$

$$= \frac{\pi}{8}\left(\sin\left(\frac{\pi}{8}\right) + \frac{\sqrt{2}}{2} + \sin\left(\frac{3\pi}{8}\right) + 1\right)$$

$$r_4 = \frac{\pi}{8} \cdot \sin\left(\frac{\pi}{8}\right) + \frac{\pi}{8} \sin\left(\frac{\pi}{4}\right) + \frac{\pi}{8} \sin\left(\frac{3\pi}{8}\right)$$

Exempel 2: $f(x) = \frac{2x}{x^2+1}$, $1 \le x \le 3$



$f(1) = 1$

$f(3) = \frac{6}{10} = \frac{3}{5}$

$x_1 = 1 + \frac{2}{n}$, $x_2 = 1 + \frac{4}{n}$

$$A = \lim_{n\to\infty} \left(f(x_1)\Delta x_1 + f(x_2)\Delta x_2 + \ldots + f(x_n)\Delta x_n\right)$$

$[1;3]$, längden 2 $\Rightarrow \frac{2}{n} = \Delta x$

$$A = \lim_{n\to\infty} \Delta x \left(f(x_1) + f(x_2) + \ldots + f(x_n)\right) =$$

$$= \lim_{n\to\infty} \frac{2}{n}\left(\frac{2(1+2/n)}{(1+2/n)^2+1} + \frac{2(1+4/n)}{(1+4/n)^2+1} + \ldots + \frac{2\cdot 3}{3^2+1}\right)$$