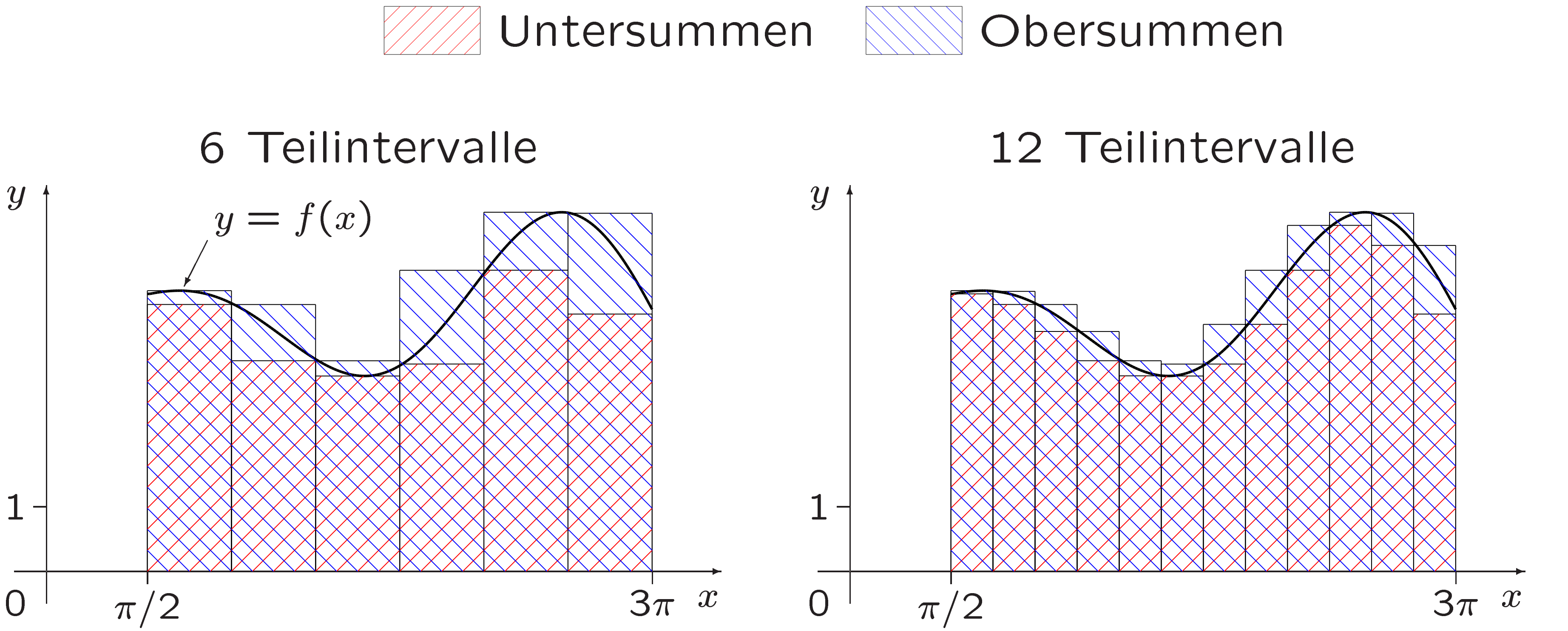
Riemannsche Unter- und Obersummen

$$\int_{\pi/2}^{3\pi} f(x)\,dx \quad \text{mit} \quad f(x) = 4 + \frac{1}{5}\,x \sin x$$



Riemannsche Unter- und Obersummen

$$\int_{\pi/2}^{3\pi} \left[4 + \frac{1}{5} x \sin x\right] dx = 10\pi + \frac{3\pi - 1}{5} \approx 33.10088$$

n – Anzahl d. Teilintervalle, $\underline{S}_n$ – Untersumme, $\bar{S}_n$ – Obersumme

n	$\underline{S}_n$	$\bar{S}_n$	n	$\underline{S}_n$	$\bar{S}_n$
1	23.8534	43.8515	100	32.8837	33.3160
2	24.5815	39.0629	$\vdots$	$\vdots$	$\vdots$
3	26.9957	38.2959	500	33.0577	33.1440
4	27.4676	37.4153	$\vdots$	$\vdots$	$\vdots$
5	28.4230	36.9421	1000	33.0793	33.1225
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
10	30.8641	35.1386	10000	33.0989	33.1028
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
50	32.6643	33.5289	100000	33.1007	33.1011