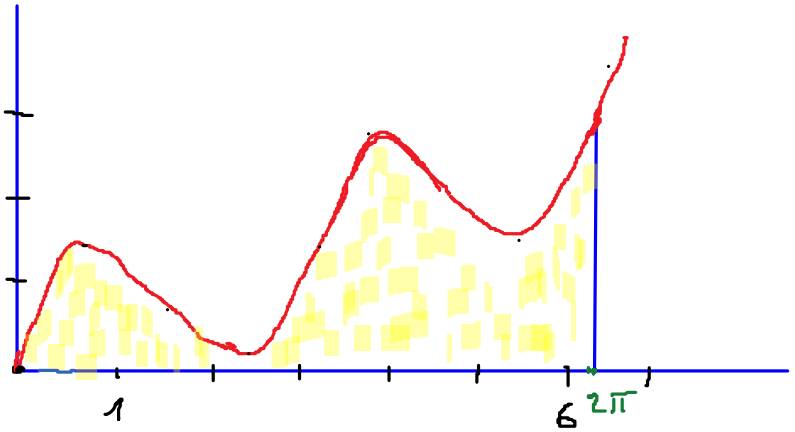
Wertetabelle (mit Taschenrechner ausrechnen!)

	0	$\frac{\pi}{4}$	$\frac{\pi}{2}$	$\frac{3\pi}{4}$	π	$\frac{5\pi}{4}$	$\frac{3\pi}{2}$	$\frac{7\pi}{4}$	2π
$f(x)$	0	1.39	0.78	0.17	1.57	2.96	2.35	1.74	3.14



$$\int_0^{2\pi} \left(\frac{1}{2}x + \sin(2x) \right) dx = \left[\frac{1}{2} \cdot \frac{x^2}{2} - \frac{1}{2}\cos(2x) \right]_0^{2\pi}$$

Substitution

$$= \left[\frac{x^2}{4} - \frac{1}{2}\cos(2x) \right]_0^{2\pi}$$

$$= \frac{4\pi^2}{4} - \frac{1}{2}\cos(4\pi) - \left(\frac{0^2}{4} - \frac{1}{2}\cos 0 \right)$$

$$= \pi^2 - \frac{1}{2} - 0 + \frac{1}{2} = \pi^2 = 9.869\ FE$$