

(s) Simpson-Regel (SR) ( $n=2$ )

Knoten:  $x_0 = a$ ,  $x_1 = \frac{a+b}{2}$ ,  $x_2 = b$

$$LP : L_0^2(x) = \frac{x - \frac{a+b}{2}}{a - \frac{a+b}{2}} \cdot \frac{x - b}{a - b}$$

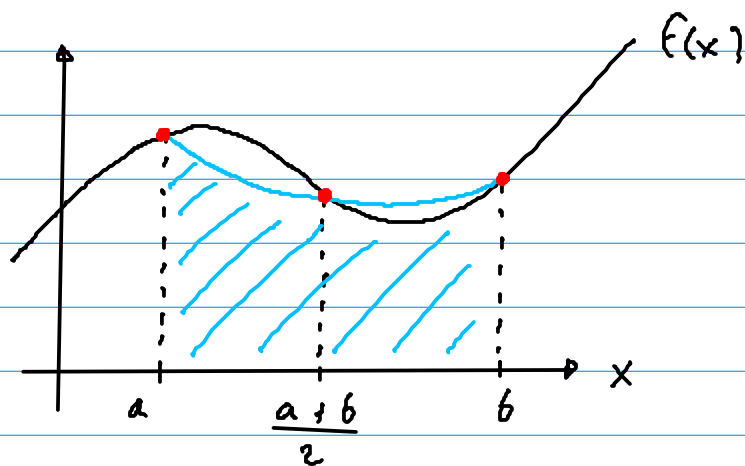
$$L_1^2(x) = \dots$$

$$L_2^2(x) = \dots$$

Gewichte:  $w_0 = \int_a^b L_0^2(x) dx = \dots = \frac{b-a}{6}$

$$w_1 = \dots = \frac{4(b-a)}{6}$$

$$w_2 = \dots = \frac{b-a}{6}$$



Damit

$$Q_2[f] = \frac{b-a}{6} \left( f(a) + 4 \cdot f\left(\frac{a+b}{2}\right) + f(b) \right)$$