

Serie 4

Aufgabe 1

0	2500	3750	5000	10'000
1013	747	?	540	226

$$P_3(x) = \sum_{i=0}^3 l_i(x) \cdot y_i$$

$$= 1013 \cdot l_0(x) + 747 \cdot l_1(x) + 540 \cdot l_2(x) + 226 \cdot l_3(x)$$

$$l_0(x) = \frac{(x-x_1)(x-x_2)(x-x_3)}{(x_0-x_1)(x_0-x_2)(x_0-x_3)}$$

$$= l_0(3750) = -0.078125$$

$$l_1(x) = \frac{(x-x_0)(x-x_2)(x-x_3)}{(x_1-x_0)(x_1-x_2)(x_1-x_3)}$$

$$= l_1(3750) = 0.625$$

$$l_2(x) = \frac{(x-x_0)(x-x_1)(x-x_3)}{(x_2-x_0)(x_2-x_1)(x_2-x_3)}$$

$$= l_2(3750) = 0.46875$$

$$l_3(x) = \frac{(x-x_0)(x-x_1)(x-x_2)}{(x_3-x_0)(x_3-x_1)(x_3-x_2)}$$

$$= l_3(3750) = -0.015625$$

$$P_3(x) = \underline{\underline{637}}$$