Aufgabe 1

$$P(x) = y_0 L_0(x) + y_1 L_1(x) + y_2 L_2(x)$$

$$L_0(x) = \frac{(x-x_1)(x-x_2)}{(x_0-x_1)(x_0-x_2)} \qquad L_0(3750) = \frac{(3750-2500)(3750-5000)}{(0-2500)(0-5000)} = \frac{1250 \cdot (-1250)}{(-2500)\cdot(-5000)} = \frac{-1562500}{12500000} = -0.125$$

$$L_1(x) = \frac{(x-x_0)(x-x_2)}{(x_1-x_0)(x_1-x_2)} \qquad L_1(3750) = \frac{(3750-0)(3750-5000)}{(2500-0)(2500-5000)} = \frac{3750 \cdot (-1250)}{2500 \cdot (-2500)} = \frac{-4687500}{-6250000} = 0.75$$

$$L_2(x) = \frac{(x-x_0)(x-x_1)}{(x_2-x_0)(x_2-x_1)} \qquad L_2(3750) = \frac{(3750-0)(3750-2500)}{(5000-0)(5000-2500)} = \frac{3750 \cdot 1250}{5000 \cdot 2500} = \frac{4687500}{12500000} = 0.375$$

$$P(3750) = 1013 \cdot (-0.125) + 747 \cdot 0.75 + 540 \cdot 0.375 = 126.625 + 560.25 + 202.5 = 636.125\ hPa$$