AshaSchwegler_S4_Aufg1

Tuesday, 15 March 2022 19:35

	x_0	x_1		x_2	x_3
m	0	2500	3750	5000	10000
hPa	1013	747	NaN	540	226

$$P_n(3750) = 1013 \cdot l_0(3750) + 747 \cdot l_1(3750) + 540 \cdot l_2(3750) + 226 \cdot l_3(3750)$$

$$l_0(3750) = \frac{(3750-2500)(3750-5000)(3750-10'000)}{(0-2500)(0-5000)(0-10'000)} = \frac{1250 \cdot (-1250) \cdot (-6250)}{(-2500)(-5000)(-10'000)} = -0.1302$$

$$l_1(3750) = \frac{(3750-0)(3750-5000)(3750-10'000)}{(2500-0)(2500-5000)(2500-10'000)} = \frac{(3750)(-1250)(-6250)}{(2500)(-2500)(-7500)} = 0.625$$

$$l_2(3750) = \frac{(3750-0)(3750-2500)(3750-10'000)}{(5000-0)(5000-2500)(5000-10'000)} = \frac{(3750)(1250)(-6250)}{(5000)(2500)(-5000)} = 0.4688$$

$$l_3(3750) = \frac{(3750-0)(3750-2500)(3750-5000)}{(10'000-0)(10'000-2500)(10'000-5000)} = \frac{(3750)(1250)(-6250)}{(10'000)(7500)(5000)} = -0.0781$$

$$P_n(3750) = (1013 \cdot (-0.1302)) + (747 \cdot 0.625) + (540 \cdot 0.4688) + (226 \cdot (-0.0781))$$

$$= -131.893 + 466.875 + 253.152 - 17.651$$

$$= \underline{570.483\ hPa}$$