

# Linear Approximation to the US Standard Atmosphere - 1976 model

$$P = P_0 \cdot \exp(-h/h_0)$$

or

$$h = h_0 \cdot \ln(P_0/P)$$

		P <sub>0</sub> h <sub>0</sub>	101.33 kPa 27672 ft	Linear Approximations				
				P = mP + b		h = k1*P + k2		
h (ft)	P (kPa)	dP/dh (kPa/ft)	dh/dP (ft/kPa)	m (kPa/ft)	b (kPa)	k1 (ft/kPa)	k2 (ft)	
1	2700	91.9101	-0.003321412	-301.0768012				
mid	3200	90.26431	-0.003261937	-306.5663449	-0.00326211	100.7178	-306.549664	
2	3700	88.64799	-0.003203527	-312.1559796			9410.817911	

kPa/ft	atm/ft	ft/kPa	m/kPa	m/atm
-0.003262114	-3.2193E-05	-306.55	-93.4374738	-9468.01922

	kPa/ft	atm/ft	ft/kPa	m/kPa	m/atm	% change
0-1000	-0.003596449	-3.5492E-05	-278.052	-84.7512869		0
1000-2000	-0.003468803	-3.4233E-05	-288.284	-87.8700082	0.036798513	
2000-3000	-0.003345686	-3.3018E-05	-298.892	-91.1034938	0.074951156	
6000-7000	-0.002895395	-2.8574E-05	-345.376	-105.271908	0.242127546	

del

Midpoint Error	
<u>h (ft)</u>	<u>% error</u>
3204.517	0.14%

m/inHg  
-316.434