

Dew Point Example to find temperature								
Given			normal boiling pt					
y_benz=	0.4		80.1	C				
y_tol=	0.6		110.6	C				
Ptot=	2 atm							
	1520	mm Hg						
T	30.0	C	<==== Guess					
	303.0	K						
Antoine Equation			A	B	C	Temp Range (C)		
P*_benz=	119.2	mm Hg	6.89272	1203.531	219.888	14.5	80.9	
P*_tol=	36.7	mm Hg	6.95805	1346.773	219.693	35.3	111.5	
Need to find an equation to set to zero!								
Rearrange dew point equation:								
0 = f(T) = 1 - sum(yi*Ptot/Pi*)								
Function=			(need vounteer!)					

Dew Point Example to find temperature								
Given								
y_benz=	0.4							
y_tol=	0.6							
Ptot=	2 atm							
	1520 mm Hg							
T	127.0 C	<==== Guess						
	400.0 K							
Antoine Equation			A	B	C	Temp Range (C)		
P*_benz=	2648.8 mm Hg		6.89272	1203.531	219.888	14.5	80.9	
P*_tol=	1183.7 mm Hg		6.95805	1346.773	219.693	35.3	111.5	
Function = 1 - sum(y_i * Ptot/P*_i)								
Function=	3.0581E-07							
Beyond T range of P* correlations!!								
xi Pi* = yi Ptot								
x_benz=	0.230							
x_tol=	0.770							
Sum=	1.0							

Dew Point Example to find total pressure using DIPPR									
Given									
y_benz=	0.4								
y_tol=	0.6								
T	127.2 C	<==== Given!							
	400.2 K								
Antoine Equation									
P*_benz=	2662.0 mm Hg								
P*_tol=	1190.3 mm Hg								
Function = 0 = 1 - sum(yi*Ptot/Pi*)									
Function= #REF!									
Beyond range of correlations!!									
DIPPR	A	B	C	D	E	Temp Range (K)		Temp Range (C)	
Benzene	83.107	-6486.2	-9.2194	6.9844E-06	2	278.68	562.05	5.68	289.05
Toluene	76.945	-6729.8	-8.179	5.3017E-06	2	178.18	591.75	-94.82	318.75
$P^* = \exp(A + B/T + C \cdot \ln(T) + D \cdot T^E)$									
P*_benz=	2652.2 mm Hg								
P*_tol=	1184.4 mm Hg								
Ptot = 1/(sum(yi*Pi*))									
Ptot= 1521 mm Hg									
2.00 atm									
xi = yi*Ptot/pi*									
x_benz=	0.22941413								
x_tol=	0.77058587								

Given			normal boiling pt						
x_benz=	0.35		80.1	C					
x_tol=	0.65		110.6	C					
Ptot=	2 atm								
	1520	mm Hg							
T	85.0	C	<==== Guess						
	358.0	K							
Antoine Equation									
P*_benz=	881.6	mm Hg							
P*_tol=	345.1	mm Hg							
Function = 0 = 1 - sum(xi*Pi*/Ptot)									
Function=	987.124637								
Beyond range of correlations!!									
DIPPR	A	B	C	D	E		Temp Range (K)		Temp Range (C)
Benzene	83.107	-6486.2	-9.2194	6.9844E-06	2		278.68	562.05	5.68 289.05
Toluene	76.945	-6729.8	-8.179	5.3017E-06	2		178.18	591.75	-94.82 318.75
P*=exp(A+B/T+C*ln(T)+D*T^E)									
P*_benz=	877.0	mm Hg							
P*_tol=	342.6	mm Hg							
Need new function for bubble point!									
Since xi's are known, we use a slightly different rearrangement of Raoult's Law:									
Start with sum(yi's) = 1 = sum(xi*Pi*)/Ptot									
F(T) = 0 = 1-sum(xi*Pi*)/Ptot									
Function=	(need another volunteer!)								

Bubble Point Example to find temperature using DIPPR									
Given									
x_benz=	0.35								
x_tol=	0.65								
Ptot=	2 atm								
	1520 mm Hg								
T	122.7 C	<==== Guess							
	395.7 K								
Antoine Equation									
P*_benz=	2396.9 mm Hg								
P*_tol=	1058.4 mm Hg								
Function = 0 = 1 - sum(xi*Pi*/Ptot)									
Function=	-6.86050099								
Beyond range of correlations!!									
DIPPR	A	B	C	D	E	Temp Range (K)		Temp Range (C)	
Benzene	83.107	-6486.2	-9.2194	6.9844E-06	2	278.68	562.05	5.68	289.05
Toluene	76.945	-6729.8	-8.179	5.3017E-06	2	178.18	591.75	-94.82	318.75
$P^* = \exp(A + B/T + C \cdot \ln(T) + D \cdot T^E)$									
P*_benz=	2387.6 mm Hg								
P*_tol=	1052.8 mm Hg								
Need new function for bubble point!									
Since xi's are known, we use a slightly different rearrangement of Raoult's Law:									
Start with $\sum(y_i's) = 1 = \sum(x_i \cdot P_i^*)/P_{tot}$									
$F(T) = 0 = 1 - \sum(x_i \cdot P_i^*)/P_{tot}$									
Function=	-7.7328E-11								

Bubble Point Example to find pressure using DIPPR									
Given									
x_benz=	0.35								
x_tol=	0.65								
T	250.0 C	<==== Given!							
	523.0 K								
Antoine Equation									
P*_benz=	21448.9 mm Hg								
P*_tol=	12322.6 mm Hg								
Function = 0 = 1 - sum(xi*Pi*/Ptot)									
Function= #REF!									
Beyond range of correlations!!									
DIPPR	A	B	C	D	E	Temp Range (K)		Temp Range (C)	
Benzene	83.107	-6486.2	-9.2194	6.9844E-06	2	278.68	562.05	5.68	289.05
Toluene	76.945	-6729.8	-8.179	5.3017E-06	2	178.18	591.75	-94.82	318.75
$P^* = \exp(A + B/T + C \cdot \ln(T) + D \cdot T^E)$									
P*_benz=	22318.4 mm Hg								
P*_tol=	12551.5 mm Hg								
P_tot = sum(xi*Pi*)									
P_tot=	15969.9 mm Hg								
	21.0 atm								
yi = xi*Pi*/Ptot									
yi_benz=	0.489								
yi_tol=	0.511								