

Kay's rule example						
P=	21	atm				
T=	650	K				
	yi	Tc (K)	Pc (atm)			MW
n-Decane	0.2	619	20.8			142.28
n-Octane	0.5	568.8	24.5			114.22
Isopentane	0.3	461	32.9			72.15
Pseudocritical (Tc' and Pc')		546.5	26.28		avg MW=	107.2
Reduced Pseudocritical		1.19	0.80			
z= 0.84						
PV=znRT						
Density = $n \cdot MW/V = P \cdot MW/(zRT)$						
R=	0.08205	L-atm/(K-gmol)				
Density= 50.3 g/L						
Ideal =	42.2	g/L				

Kay's rule example								
P=	21 atm							
T=	650 K		Wrong Way!!!					
	yi	Tc (K)	Pc (atm)	Tr	Pr	zi		MW
n-Decane	0.2	619	20.8	0.95	0.99	0.44		142.28
n-Octane	0.5	568.8	24.5	0.88	1.17	0.8		114.22
Isopentane	0.3	461	32.9	0.71	1.57	0.953		72.15
Pseudocritical (Tc' and Pc')		546.5	26.28			0.77	avg MW=	107.211
Reduced Pseudocritical		1.19	0.80					
z= 0.84								
PV=znRT								
Density = $n \cdot MW/V = P \cdot MW/(zRT)$								
R=	0.08205	L-atm/(K-gmol)						
Density=	50.3 g/L					54.5		
Ideal =	42.2 g/L							