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[ > restart;
Example 3.7 of SnN&A

> R := 83.14; (cm^3-bar/mol-K)
R := 83.14

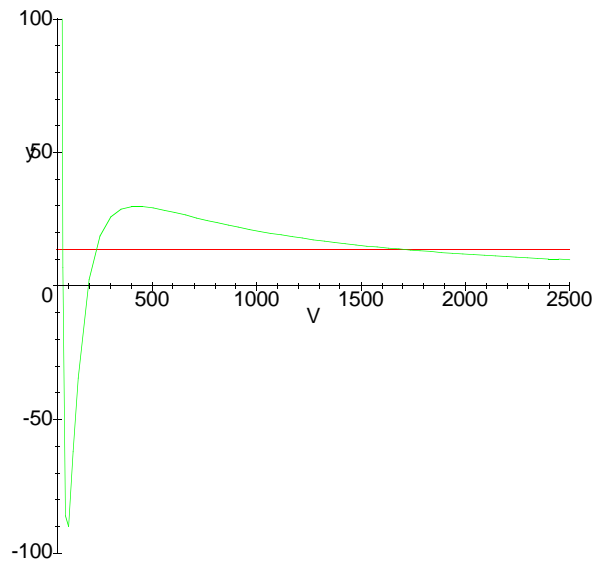
Define function for Redlich-Kwong EOS
> P_RK := (T,V,a,b) -> R*T/(V-b) - a/(sqrt(T)*V*(V+b));
P_RK := (T, V, a, b) →  $\frac{RT}{V-b} - \frac{a}{\sqrt{T} V(V+b)}$ 

Critical constants for methyl chloride
> Tc := 416.3;
Pc := 66.8;
Tc := 416.3
Pc := 66.8

a and b parameters from critical constants
> a := 0.42748 * R^2 * Tc^2.5 / Pc;
b := 0.08664 * R * Tc / Pc;
a := .1564139220 109
b := 44.89091031

Look at equation of state
> T := 60 + 273.15;
P := 13.76; (bar)
plot({P,P_RK(T,V,a,b)},V=45..2500,y=-100..100);
T := 333.15
P := 13.76

```



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[ > solve(P=P_RK(T,V,a,b),V);
71.33913647, 228.8024685, 1712.801055
[ >

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