

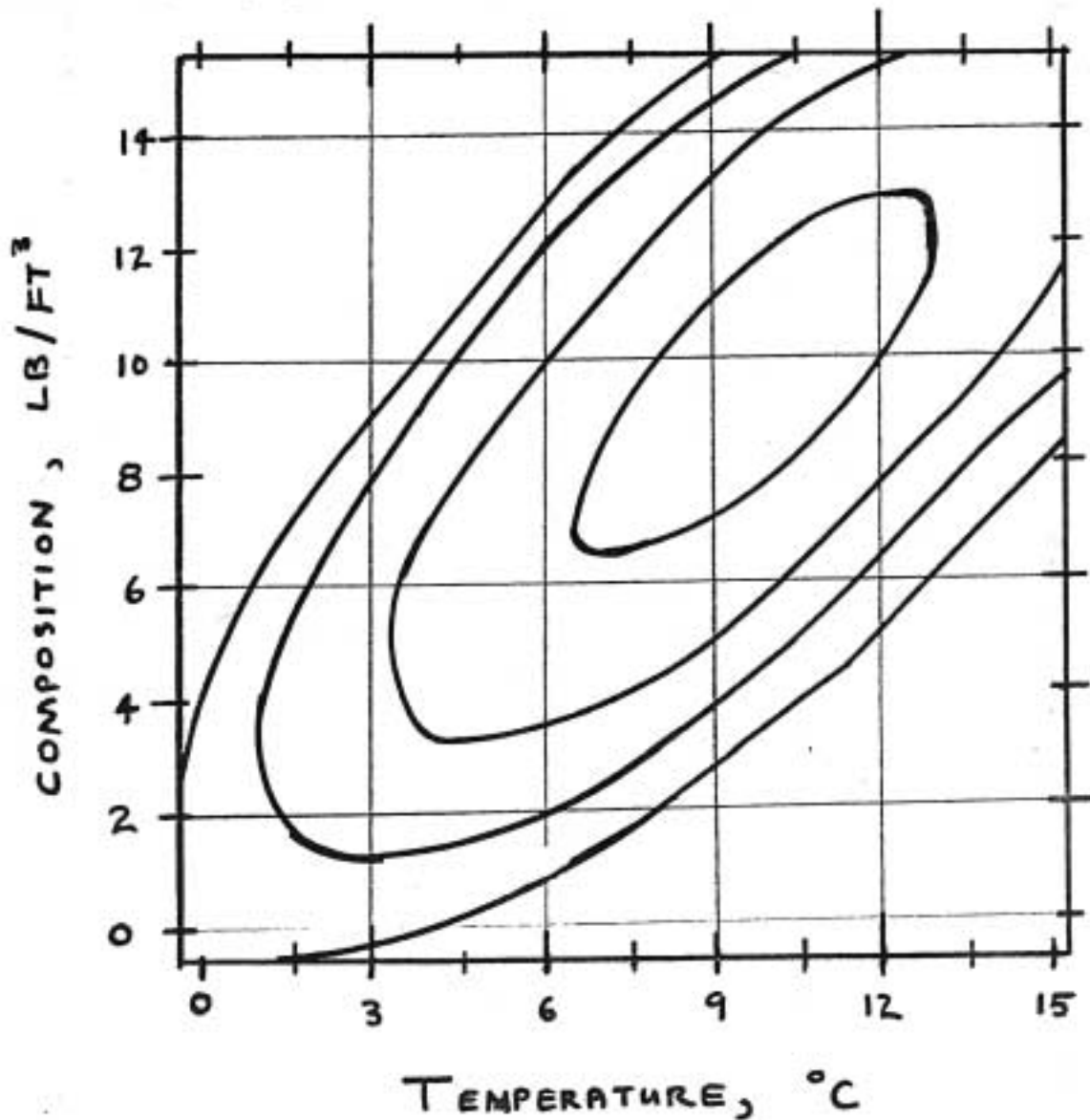
OPTIMIZATION - EVolutionary OPeration Example Problem EVOP-1

Using the EVOP Simplex method, find the temperature and feed composition that maximizes reactor conversion.

$$\text{CON} = 84. + T + C + (0.4TC) - (T^2/4.) - (C^2/4.)$$

Where : CON = % Conversion
 T = Temperature (°C)
 C = Feed Composition (Lb/Ft³)

Start at the point **T = 6, C = 1** and use **steps of 1.0** for both variables.
Perturb Temperature first. Follow your progress on the contour chart attached.



OPTIMIZATION - EVolutionary OPeration Example Problem EVOP-2

Using the EVOP Simplex method, find the temperature and feed composition that maximizes reactor conversion.

$$\text{CON} = 84. + T + C + (0.4TC) - (T^2/4.) - (C^2/4.)$$

Where : CON = % Conversion
 T = Temperature (°C)
 C = Feed Composition (Lb/Ft³)

Start at the point **T = 9**, **C = 2** and use **steps of 1.0** for both variables.

Use the list of random numbers below to simulate random error in the process response. *Add a new random number to each calculated conversion*, CON response; progress from left to right across the table :

└──→

0.159	2.273	0.041	-1.132	0.768	0.375	-0.513	0.292	1.026	-1.334
-0.287	0.161	-1.346	1.250	0.630	0.375	-1.420	-0.151	-0.309	0.424
0.593	0.862	0.235	-0.853	0.137	-2.526	-0.354	-0.473	-0.355	-0.313
-1.055	-0.488	0.756	0.225	1.678	-0.160	0.598	-0.899	-1.163	-0.261

Follow your progress on the contour chart attached.

