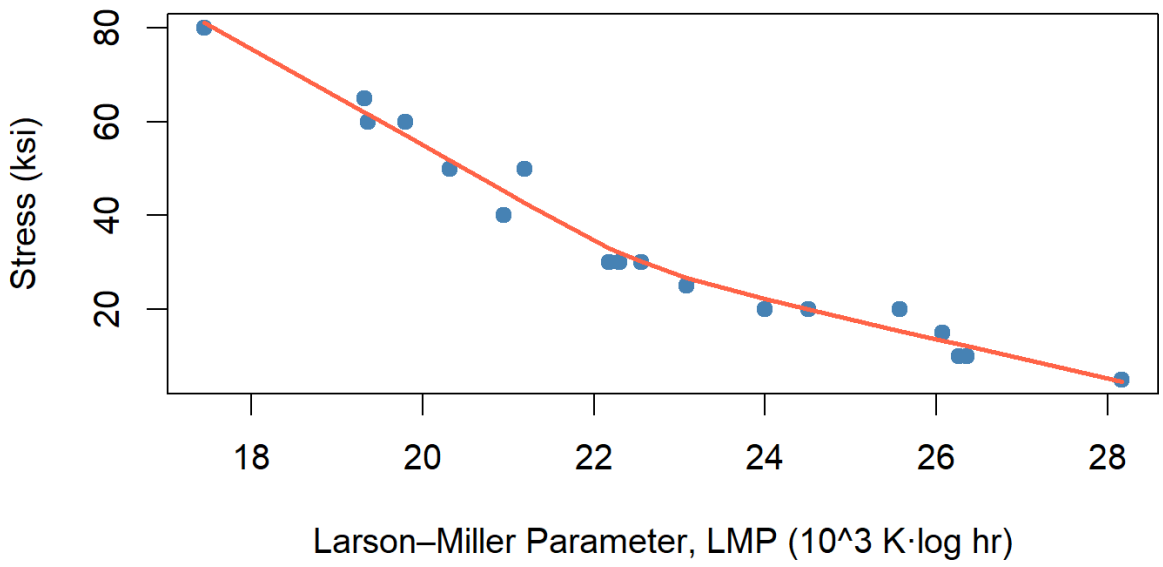
1 Problem 1

Data obtained from a series of stress rupture tests:

650 °C	Stress (ksi)	80	65	60	40
	Rupture life (hr)	0.08	8.5	28	483
730 °C	Stress (ksi)	60	50	30	25
	Rupture life (hr)	0.2	1.8	127	1023
815 °C	Stress (ksi)	50	30	20	-
	Rupture life (hr)	0.3	3.1	332	-
920 °C	Stress (ksi)	30	20	15	10
	Rupture life (hr)	0.08	1.3	71	123
1040 °C	Stress (ksi)	20	10	5	-
	Rupture life (hr)	0.3	1	28	-

1.1 Make a Larson-Miller plot of the data



This plot is created using R. The Larson-Miller parameter is calculated using the equation:

$$\text{LMP} = T(20 + \log(t))10^{-3}$$

For example, for the values at the top of the table associated with 650 $C°$:
$\text{LMP} = (650 + 273.15)(20 + \log 0.08)$

1.2 Life span when 30 ksi of stress is applied at 600$C°$