Service Storage Example Problem

1. Average hourly demand rates in gpm for a municipal system are shown below. Find the uniform 24-hour pumping rate (gpm) and the required storage volume (gallons).

Time	Hourly Demand Rate (gpm)	Time	Hourly Demand Rate (gpm)
12:00 M	0	12:00 N	2980
1:00 AM	1185	1:00 PM	2922
2:00 AM	1126	2:00 PM	2973
3:00 AM	822	3:00 PM	3192
4:00 AM	870	4:00 PM	3151
5:00 AM	1373	5:00 PM	3761
6:00 AM	1822	6:00 PM	4214
7:00 AM	2510	7:00 PM	4553
8:00 AM	3526	8:00 PM	3665
9:00 AM	3425	9:00 PM	2747
10:00 AM	2939	10:00 PM	1834
11:00 AM	2850	11:00 PM	1608
		12:00 M	1278

2. Solve #1 for the following alternative scenarios:
   a. Pumping from 6 AM to 6 PM only
   b. Pumping from 6 PM to 6 AM only