Pump Problem (Problem 4-20, page 133)

Pump 1

Discharge (gpm)	Head (ft)
900	300
1200	200
1500	100

Pump 2

Discharge (gpm)	Head (ft)
1500	350
1900	300
2300	200
2600	150

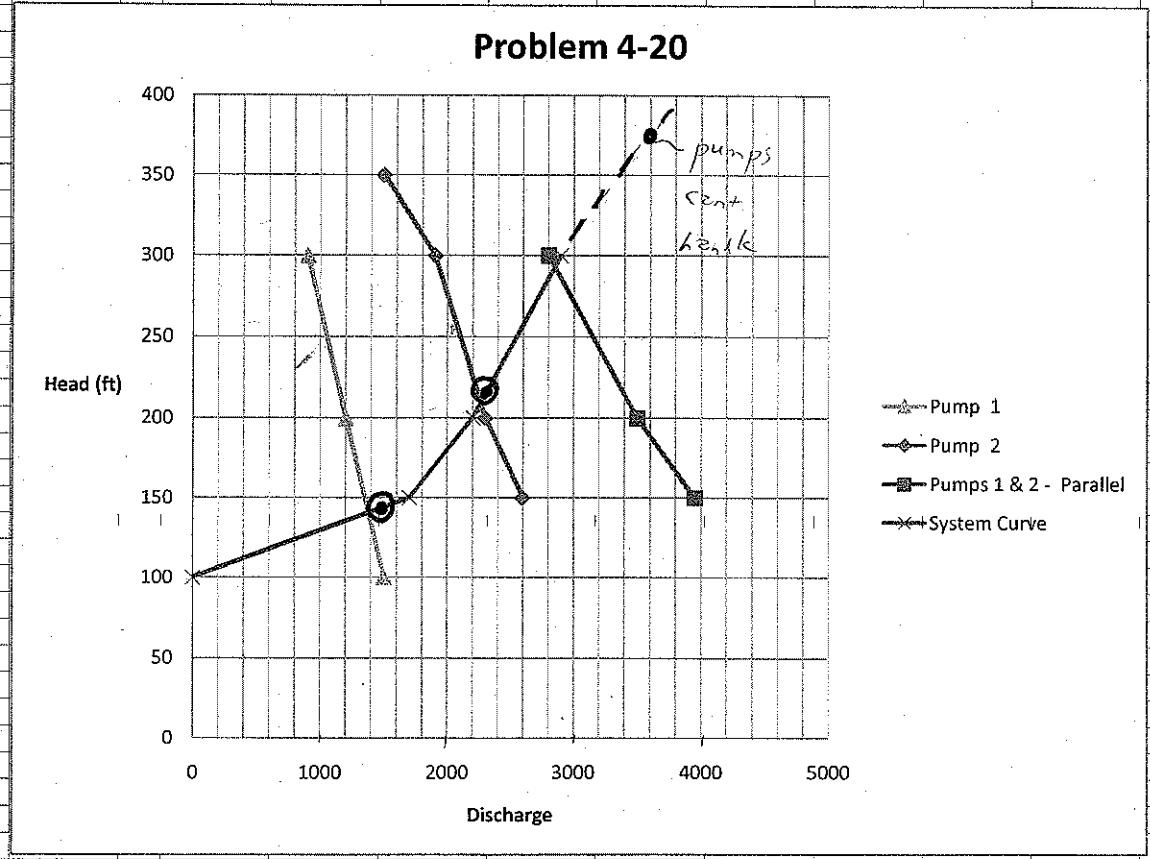
System Curve

Discharge (gpm)	Head (ft)
0	100
1700	150
2200	200
2900	300

Pumps 1 & 2 - Parallel

Discharge (gpm)	Head (ft)
2800	300
3500	200
3950	150

1355
2605
3950



Locate pts when water demand is

- 1500 gpm (mean water use) – pump 1
- 2160 gpm (max. daily usage) – pump 2
- 3605 gpm (max. daily + fire demand) – pumps can't handle

Problem 4-28 (page 134)

Q (cms)	Q (liters/sec)	Lower System Curve (m)	Upper System Curve (m)	One Pump (m)	Two Pumps (m)	BEP
0	0	28	35			
0.005	5	28	35			
0.01	10	28	37			
0.018	18	29	40	44		
0.025	25	31	45	42.1		
0.028	28	31	47	40.7		
0.03	30	32	49	40		40
0.036	36	33	54	36	44	
0.041	41	35	59		43.2	
0.045	45	36	64		42.5	
0.05	50	37	70		41.7	
0.06	60	41	84		40	40
0.072	72	47	104		36	

Lower system curve---Water flows from both the pumps and tank storage Q=60 liters/sec Pump supplying flow through 200 mm pipe

Upper system curve---No discharge at the load center (pumping to storage) Q=20 liters/sec Pump supplying flow to tank through 2 pipes in series