Worksheet 3
Designing Solar Pumping Plants

Given:

A rainwater collection tank in San Antonio holds 500 gallons. The owner wants to connect his drip irrigation system to the rainwater tank to irrigate his flower beds but does not have enough pressure to operate the system. The drip system consists of 150 feet of 24-inch drip product with a flow of 0.5 GPM/100ft and an operating pressure of 15 PSI. (Assume 3 psi pressure loss through valves and fittings.)

1. What is the *pumping head* of the system in psi? In feet of head?

2. What is the *total flow* of the irrigation system in gallons per minute (GPM)? In gallons per hour (GPH)?

3. Using the Lorentz Booster Pump Curve/Chart, which pump will meet the minimum requirements for pumping head and total flow?

4. What is the required *wattage* (power) of the pump?

Total Lift		PS150 BOOST 60			PS150 BOOST 125			PS150 BOOST 240		
Feet	Meters	L/h	US-G/h	Watts	L/h	US-G/h	Watts	L/h	US-G/h	Watts
17	5	260	69	35	475	125	50	900	238	65
33	10	257	68	40	470	124	55	895	236	90
50	15	254	67	45	470	124	62	890	235	105
65	20	252	67	55	469	124	70	880	232	120
83	25	250	66	63	460	122	80	875	231	135
100	30	248	66	72	450	119	90	870	230	150
132	40	246	65	80	448	118	105	865	229	200
150	45	244	64	85	447	118	112	860	227	225
165	50	242	64	90	446	118	120			
200	60	240	63	95	425	112	140			
231	70	239	63	110	419	111	160			
265	80	238	63	125	409	108	185			
300	90	236	62	140	407	108	200			
330	100	234	62	165						
400	120	228	60	185						
460	140	222	59	220						