While on scene of a fire, you are instructed to pump 3 lines. The first line is a 200' 1 3/4" pre-connected line with a fog nozzle flowing 95 GPM. The second line is a 300' 2 1/2" line with a 1 1/8" tip (250 GPM). Your third line is a mounted master stream flowing 1000 GPM off of a Fog nozzle. Your hydrant is a 1500 gpm hydrant.

- 1. What is your total GPM with all lines flowing?
- 2. With your lines in service, what is the remaining available flow from your hydrant?
- 3. What is the nozzle pressure on the 2 1/2" line?
- 4. How many pounds of water would you be putting on the roof if you were flowing both the master stream and the 2 1/2" line on to the structure for 15 minutes?

You are asked to pump water to a truck with an elevated stream. The ladder is <u>elevated</u> to 60' with a 1 1/2" tip.

- 1. What is your hydraulically correct GPM flow for this line?
- 2. What is your nozzle pressure?
- 3. How much head pressure do you need to overcome?
- 4. How much friction loss would you get from flowing through the truck?

You are first on scene of a structure fire and are asked to pump 3 lines after taking a 2000 gpm hydrant. Your first line is a 200' 2 1/2" line with a 1 1/4" tip (325 gpm). Line 2 is 400' of 2 1/2" hose to a 1 1/8" tip (250 gpm). Line 3 is 200' of 4" to a portable master stream flowing 1500 gpm on a fog.

- 1. Do you have enough water to flow all three lines?
- 2. What would your total GPM be if you flowed all 3 lines?
- 3. What is the nozzle reaction on the master stream?
- 4. How many cubic feet of water would you have put on the fire if you did flow all 3 lines for 12 minutes?

You are the engineer pumping a wildland hose lay off of your engine. The hose lay begins with 200' of 1 1/2" line and is extended 100' every 3 minutes. You are asked to pump 100 psi to the nozzle flowing 30 gpm.

- 1. Refer to your friction loss sheet and assume your maximum PDP cannot exceed 200 psi. What is the maximum length of hose you may have on the hose lay with no elevation gain or loss?
- 2. Not exceeding 200 psi, how many feet of hose may you pump to if the nozzle 200' above the engine?
- 3. Given the above information, how long would it take you to extend a hose line 5000'....nearly a mile?