



DRIVER OPERATOR COURSE

Session 1 Hydraulics Homework

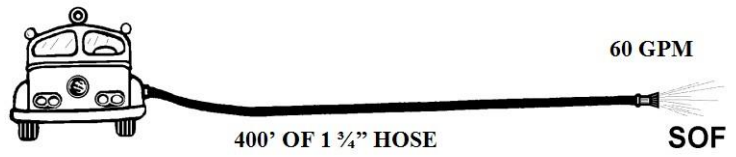
Instructions:

- 1) Prior to working these practice problems, you should have a thorough understanding of the concepts presented in Session I of the DOC.
- 2) You should have reviewed the concepts presented in the Hydraulics Section of the Drill Manual. If you have difficulty, seek help from your Engineer or refer to the examples in the Hydraulics section of the Drill Manual. We will have plenty of time to review any questions you may have during Session II.
- 3) This homework needs to be completed and turned in at Session II.

Show all of your work!

PROBLEM #1

400' of 1 3/4" hose with a 60 GPM SOF nozzle



$$PP = NP + TFL$$

NP =

GPM =

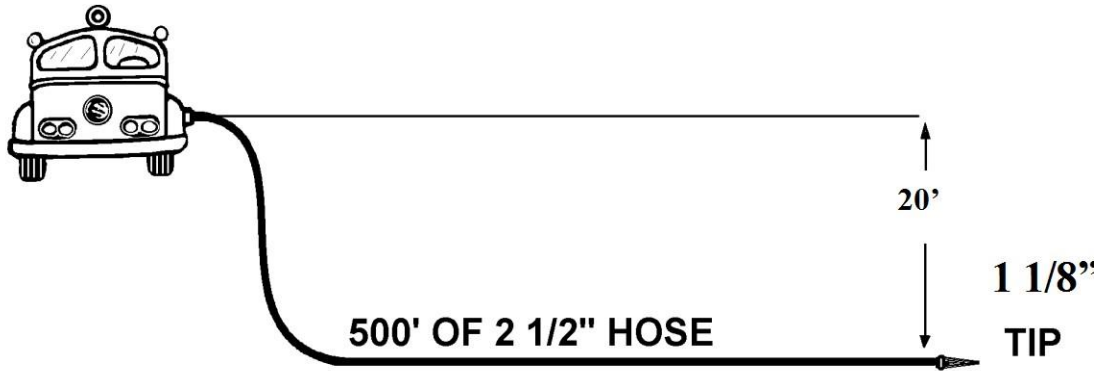
FLR =

TFL =

PP =

PROBLEM #2

500' of 2 1/2" hose 20' below the pump with a 1 1/8" tip



$$PP = NP + TFL - GG$$

NP =

GPM =

FLR =

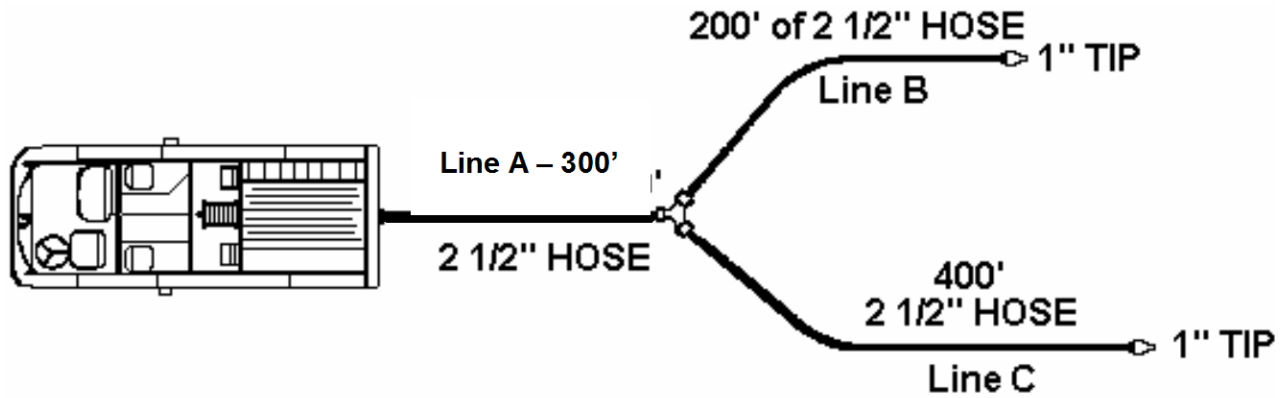
TFL =

GG =

PP =

PROBLEM #3

200' of 2 1/2" hose with a 1" tip and 400' of 2 1/2" with a 1" tip wye'd off of 300' of 2 1/2" hose



$$PP = NP + TFL (\text{Line A}) + TFL (\text{Line B/C})$$

NP =

GPM (Line A) =

GPM (Line B/C) =

FLR (Line A) =

FLR (Line B/C)

L (Line A) =

L (Line B/C) =

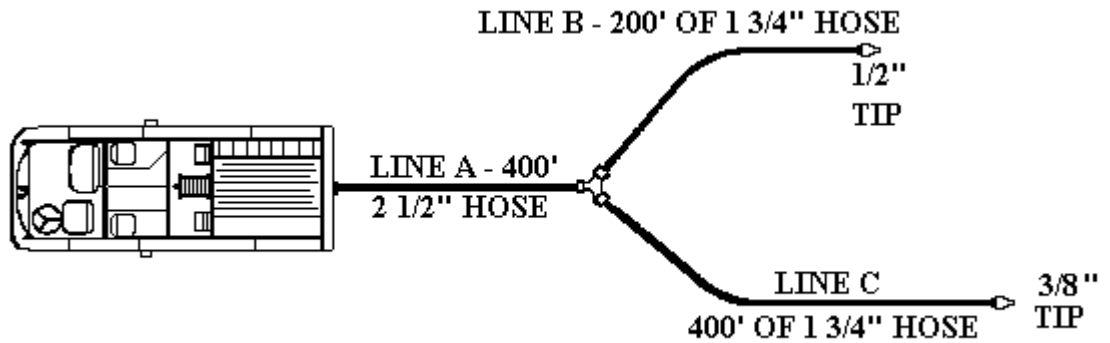
TFL (Line A) =

TFL (Line B/C) =

PP =

PROBLEM #4

200' of 1 3/4" hose with a 1/2" tip and 400' of 1 3/4" with a 3/8" tip wye'd off of 400' of 2 1/2" hose



$$PP = NP + TFL (\text{Line A}) + TFL (\text{Line B/C})$$

NP =

GPM (Line A) =

GPM (Line B) =

GPM (Line C) =

FLR (Line A) =

FLR (Line B/C) =

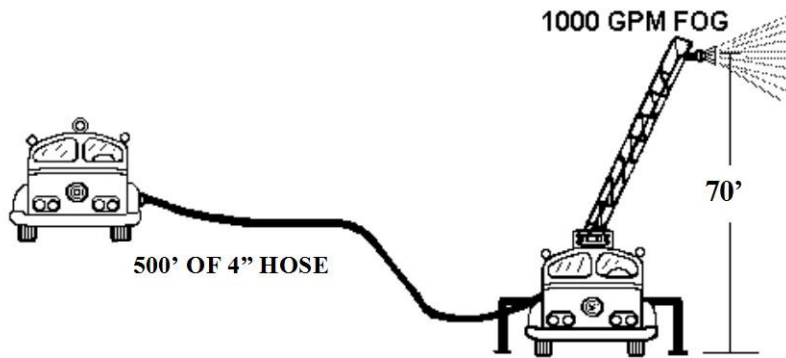
TFL (Line A) =

TFL (Line B/C) =

PP =

PROBLEM #5

Pre-plumbed ladder with a 1000 GPM fog at an elevation of 70' supplied by 500' of 4" line



$$PP = NP + TFL + GL + LSL$$

NP =

GPM =

FLR =

TFL =

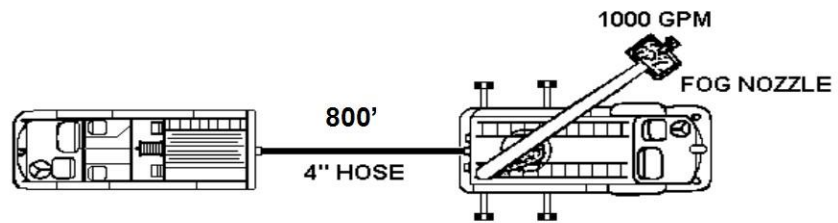
GL =

LSL =

PP =

PROBLEM #6

Platform at an 80' elevation with a 1000 GPM fog supplied by 800' of 4"



$$PP = NP + TFL + GL + LSL$$

NP =

GPM =

FLR =

TFL =

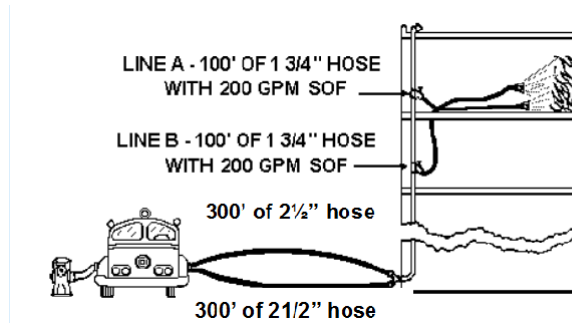
GL =

LSL =

PP =

PROBLEM # 7

Standpipe system supplied by two 300' lines of 2 1/2" with two 100' 1 3/4" firefighter lines using an Elkhart Phantom Hi-Rise Fog nozzle set at 200 GPM on the 8th floor



$$PP = NP + TFL (\text{Supply}) + TFL (\text{Attack}) + GL + SL$$

NP =

GPM (Supply) =

GPM (Attack) =

FLR (Supply) =

FLR (Attack) =

TFL (Supply) =

TFL (Attack) =

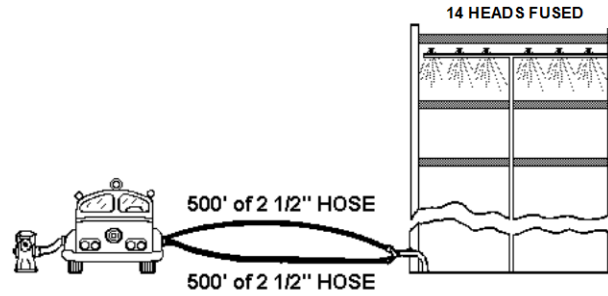
GL =

SL =

PP =

PROBLEM # 8

Fourteen heads fused on the 5th floor with the sprinkler system supplied by two 500' lengths of 2 1/2"



$$PP = NP + TFL + GL + \text{Spr L}$$

NP =

GPM =

FLR =

TFL =

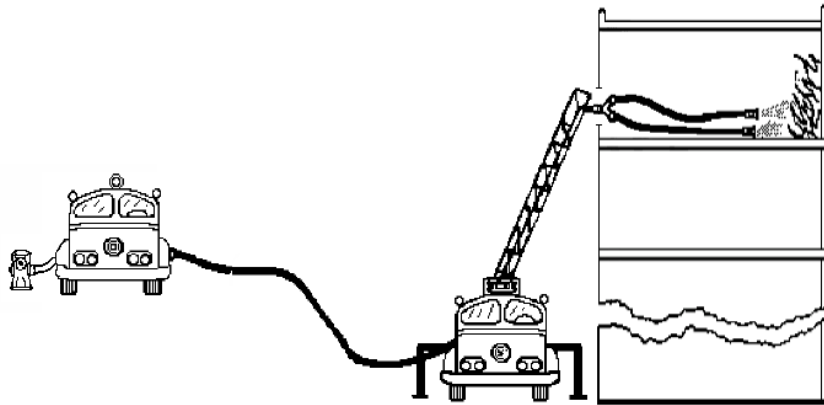
GL =

Spr L =

PP =

PROBLEM #9

An aerial ladder is supplied by 200' of 4" hose. The aerial ladder is set up to a third floor window with two 150' 1 3/4" firefighter lines flowing from a wye at the end of the ladder. Each SOF nozzle is flowing 200 GPM.



$$PP = NP + TFL (\text{Supply}) + TFL (\text{Attack}) + GL + LSL$$

NP =

GPM (supply) =

GPM (Attack) =

FLR (Supply) =

FLR (Attack) =

TFL (Supply) =

TFL (Attack) =

GL =

LSL =

PP =