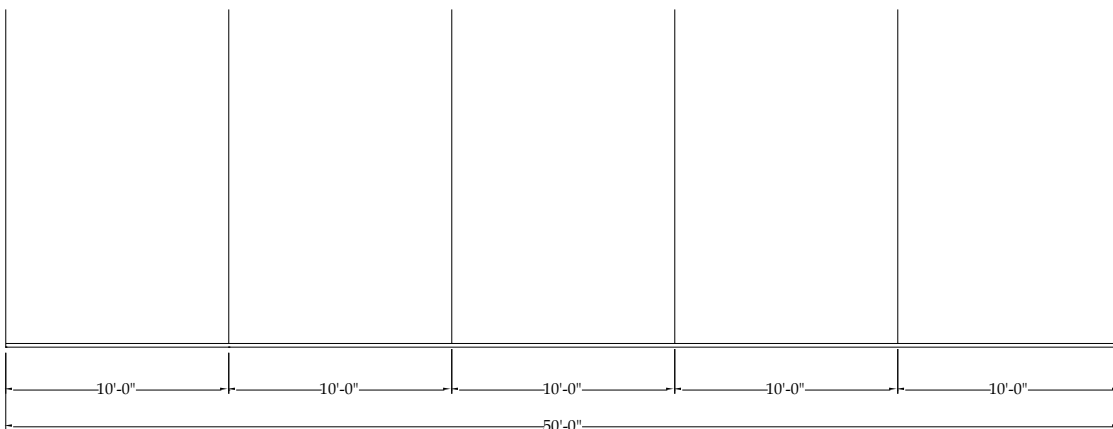


Name: \_\_\_\_\_

1) On a batten with a 12' span between lift lines, what is the smallest size of pipe that will support a 125# point load at 1/3 of yield? What span would work for the next smaller size of pipe? (2 points)

2) Find the WLL for a 1/2" Polyester rope in the Backstage handbook: (4 points)  
 What is the WLL for that same rope if a knot is tied in it:  
 What is the DF of the rope listed in the Backstage Handbook:  
 What is the minimum DF for fiber rope in rigging applications:

3) The pictured batten is 1-1/2" schedule 40 pipe, 50' long with 6 lift lines 10' apart: (8 points)  
 a) Calculate the total maximum load on the batten based on the uniform (distributed) load at 1/360 deflection.  
 b) Calculate the load on each lift line if the batten is loaded to that maximum capacity, using "Rule of Thumb Beam Loads." Include the weight of the pipe.  
 c) Choose an appropriate rope for the lift line with the greatest load. Use the rope specs from the Backstage handbook. Remember to account for the knot used to attach the rope to the batten.



4) Sketch and label a complete hemp rigging system. Be sure to include: batten, lift lines, pin rail, loft blocks, head block, and sandbags (5 points)

*Show all your work!*