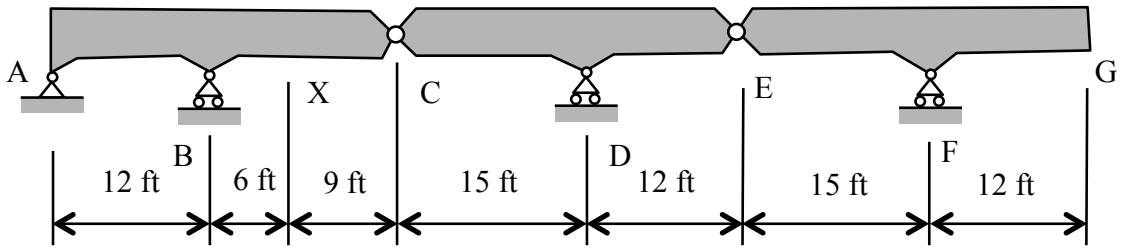
Name: _____



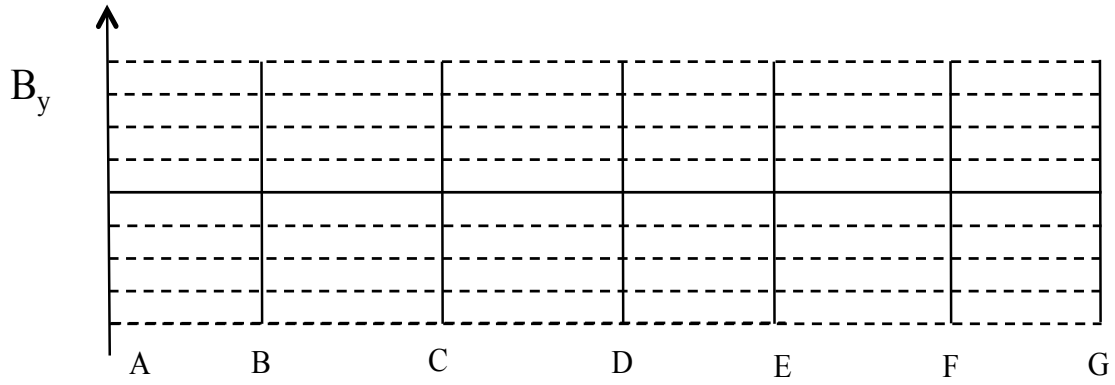
The beam shown is pin supported at point A; roller supported at points B, D, and F (note that roller supports resist movement both up and down); and has internal hinges at points C and E.

1. Construct the influence line for the vertical support reaction at the roller at point B. Take support reaction upward as positive. Using statics, find the value of B_y for a unit load placed at B, C, E, and G.
2. Construct the influence line for the vertical support reaction at the roller at point D. Take support reaction upward as positive. Using statics, find the value of D_y for a unit load placed at C, D, E, and G.
3. Construct the influence line for the internal shear at point X. Use the "usual" Civil Engineering sign convention for positive shear. Using statics, find the value of V_X for a unit load placed at X^-, X^+, C, E, and G.
4. Construct the influence line for the internal bending moment at point X. Use the "usual" Civil Engineering sign convention for positive bending moment. Using statics, find the value of M_X for unit loads places at C, E, and G.
5. Using the influence line for the internal shear at point X, find the maximum positive shear at point X for a uniformly distributed live load of 1.5 k/ft and a uniform dead load of 0.6 k/ft.

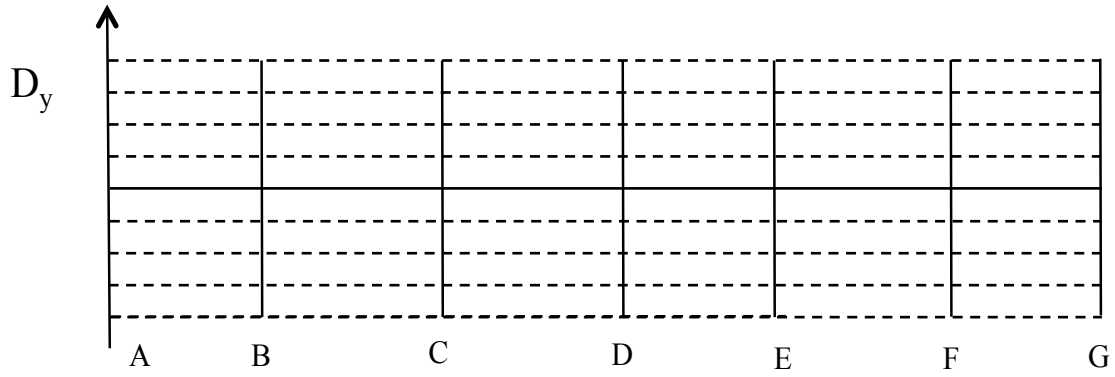
Use the table below to record the results of your analyses and plot your diagrams on the axes provided on the next page.

Unit load at:	B_y	D_y	V_X	M_X
A	0	0	0	0
B		0	0	0
X^-	-----	-----		
X^+	-----	-----		
C				
D	0		0	0
E				
F	0	0	0	0
G				

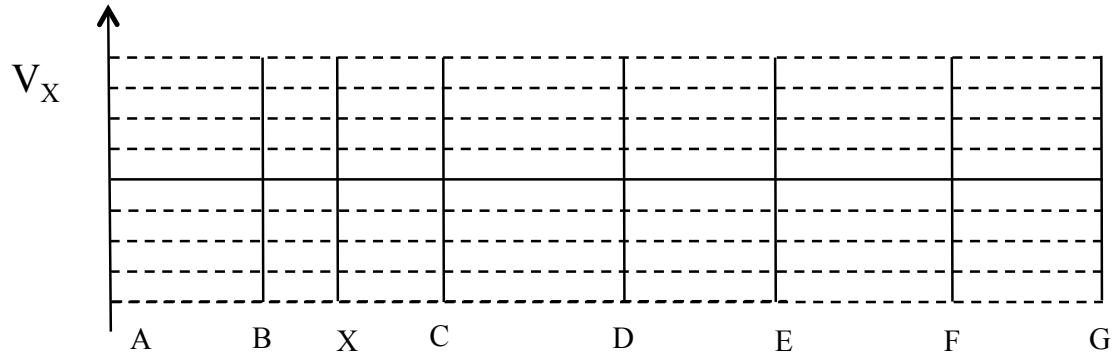
1.



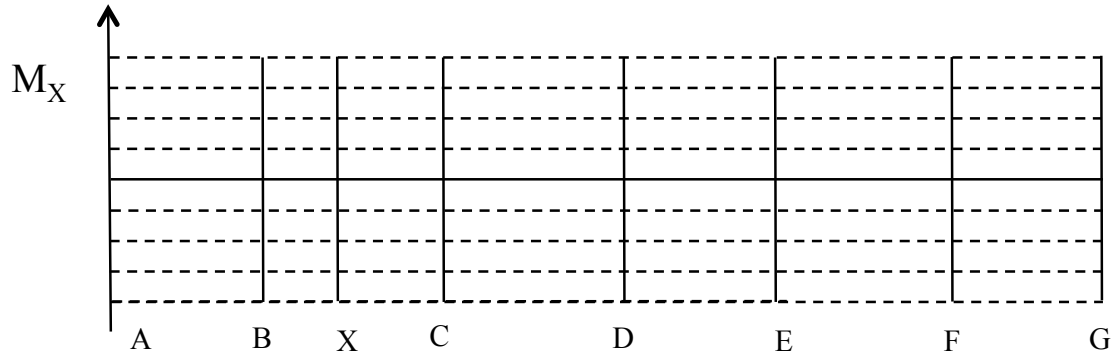
2.



3.



4.



5. The maximum positive shear at X for the given dead load and live load is: