P12.2. For the beam shown in Figure P12.2, draw the influence lines for the reactions $M_A$ and $R_A$ and the shear and moment at point $B$. 

![Beam Diagram]

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P12.3. Draw the influence lines for the reactions at supports A and C, the shear and moment at section B, and the shear just to the left of support C.
a) INFL LINE FOR $B_y$

MULLER BRESLAV

UNIT LOAD AT C:

$\Sigma M_A = 0: \quad B_y(12') - t(26') = 0$

$B_y = \frac{26}{12} = 2.167$

$\Sigma M_D = 0 \Rightarrow V_C = 0$

$F_C = 0$

$D_y = 0$
b) Infl Line for $V_C$

Muller-Breslau

UNIT LOAD AT E

$V_C$

$\begin{align*}
V_C & \downarrow \\
A & B & C & D & E \\
0 & & & & \\
\end{align*}$

$\begin{align*}
G \geq M_D &= 0 \\
-1(12') - V_C(14') &= 0 \\
V_C &= -0.857
\end{align*}$

C) Infl Line for $M_B$

Muller-Breslau

UNIT LOAD AT E

$V_C = -0.857$

$\begin{align*}
M_B & \mathbf{1} \\
A & B & C & D & E \\
0 & & & & \\
\end{align*}$

$\begin{align*}
G \geq M_B &= 0 \\
-M_B + 0.857(14') &= 0 \\
M_B &= 12 \text{ ft}
\end{align*}$
P12.5. (a) Draw the influence lines for reactions $R_B$, $R_D$, and $R_F$ of the beam in Figure P12.5 and the shear and moment at $E$. (b) Assuming that the span can be loaded with a 1.2 kips/ft uniform load of variable length, determine the maximum positive and negative values of the reactions.

Reactions produced by $W = 1.2$ kips/ft

$R_B = WA = 1.2 \text{ kips/ft} \left( \frac{1}{2} \times 12 \times \frac{3}{2} \right) = 10.8 \text{ kips}$

$R_D = 1.2 \left( \frac{1}{2} \times \frac{3}{4} \times 4 \right) + 1.2 \left( \frac{1}{2} \times 4 \times \frac{1}{2} \right) = 18 \text{ kips}$

$R_F = 1.2 \left( \frac{1}{2} \times 12 \times \frac{1}{2} \right) = 3.6 \text{ kips}$