and $y = (1 - x^2)/r$

hence $h = H/Wr = \dfrac{m^o (1 - x^2)\, dx}{(1 - x)^2\, dx}$

Solving the above equation we get

$$h = (5 - Z^2)(1 - Z^2) \times 5/64$$

This is the influence line of H.

In the case of a uniform load W over the whole span :

$$H = 1/2\ Wra$$

the bending moment due to a single live load W is more accurately expressed as;

$$M = M - Hay - Hau$$

Where "au" is the deflection at P, H the total thrust due to all Loads dead and live. H is that due only to load W. the terms due to dead load are left out as they cancel each other. The equation is rewritten as ;

$$Wam = Wam^o - rhayW - Hau$$

or $\quad m = m^o - rhy - Hu/W$

From the above equation, the equation for bending moment influence is derived which is ;

$$-m = A \sinh cx + B \cosh cx + D$$

A and B are constrants of integration and $D = 2h/c$

where $c^2 = a^2 H/EI$

$$m = \frac{\sinh c(1 - z)}{2c} \quad \frac{\cosh cx}{\cosh c} + \frac{\sinh cx}{\sinh c} \quad \frac{2h}{c^2} \quad i - \frac{\cosh cx}{\cos hc}$$