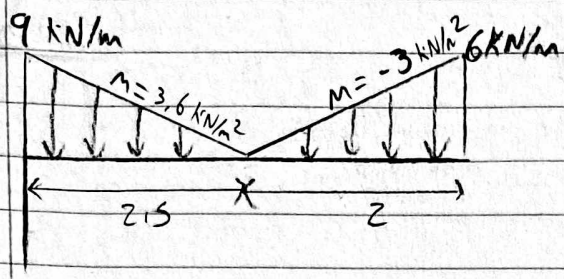
Solutions: 21-S-7.3-MK-04 & 21-S-73-MK-05

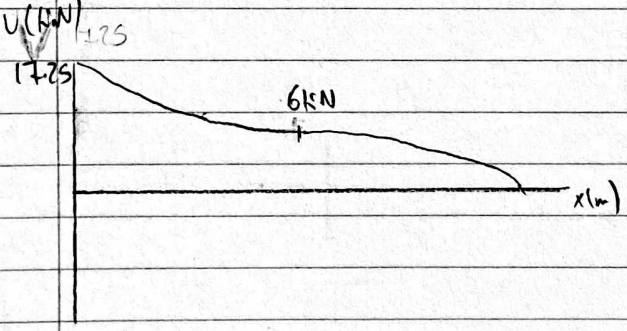


$$\Sigma M_A = 0 = -\frac{1}{2}(9\,kN/m)(2.5m)(2.5m)\frac{1}{3} - \frac{1}{2}(6\,kN/m)(2m)\left((2m\times\frac{2}{3}+2.5)\right)$$

$$M_A = 32.375$$

$$\Sigma f_y = 0 = A_y - \frac{1}{2}(9\,kN/m)(2.5m) - \frac{1}{2}(6\,kN/m)(2m)$$

$$A_y = 17.25\,kN$$



$V_A = 17.25\,kN$

$$V_B = 17.25 + \int -9 + 3.6x$$

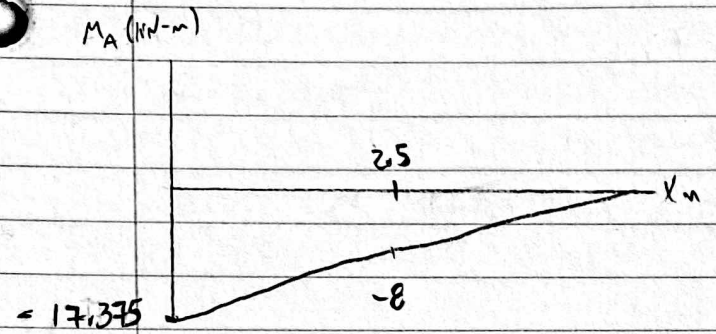
$$17.25 - 9x + \frac{3.6x^2}{2}$$

$$17.25 - 9(2.5m) + \frac{3.6(2.5)^2}{2} \Rightarrow \boxed{V_B = 6\,kN}$$

$$V_C = 6\,kN + \int -3x$$

$$6\,kN - \frac{3x^2}{2}$$

$$6\,kN - \frac{3(2)^2}{2} = 0$$



$M_A = 0 - 32.375 = -32.375$

$M_B = -32.375 + \int 17.25 - 9x + 1.8x^2$

$-32.375 + 17.25x - \frac{9x^2}{2} + \frac{1.8x^3}{3}$

$-32.375 + 17.25(2.5) - \frac{9(2.5)^2}{2} + \frac{1.8(2.5)^3}{3}$

$M_B = -8$

$M_C = -8 + \int 6 - 3x^2$

$= -8 + 6x - \frac{3x^3}{6}$

$= -8 + 6(2) - \frac{3(2)^3}{6} = C$

Solutions: 21-S-7.3-MK-04

@ 1.8375 m

$$V_d = 17.25 - 9(1.8375m) + \frac{3.6(1.8375)^2}{2} \rightarrow \boxed{V_d = 6.79\ kN}$$

$$M_d = -32.375 + 17.25(1.8375m) - \frac{9\,kN/m\,(1.8375m)^2}{2} + \frac{1.6\,kN/m\,(1.8375m)^3}{3}$$

$$\boxed{M_d = -12.149\ kN}$$