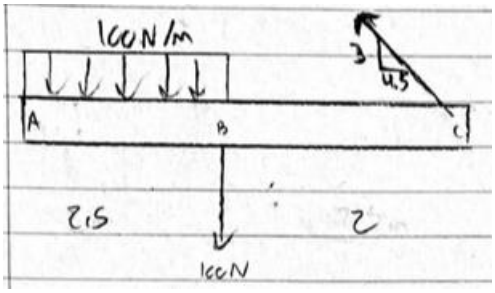
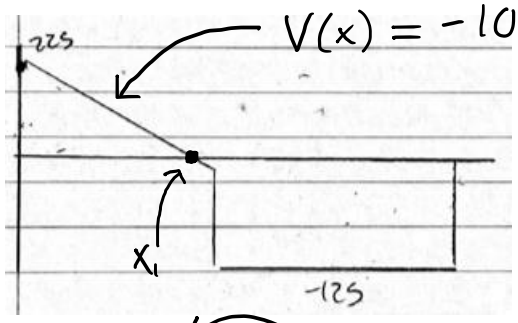
# Solution: 21-S-7-3-MK-03



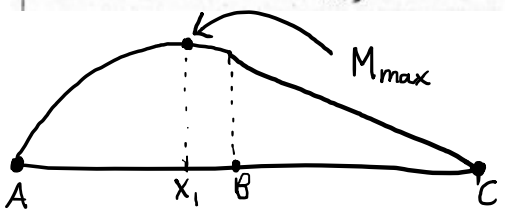

$$\sum M_A: 4.5C_y = 250(1.25) + 100(2.5)$$
$$\Rightarrow C_y = 125\,N$$
$$C_x = 125\left(\frac{4.5}{3}\right) = 187.5\,N$$
$$|\vec{C}| = \sqrt{C_x^2 + C_y^2} = \boxed{225.3\,N}$$

$$A_x = C_x = \boxed{187.5\,N}$$

$$\sum F_y: A_y + C_y = 100(2.5) + 100 \Rightarrow A_y = \boxed{225\,N}$$




$$V(x_1) = 0 = -100x_1 + 225$$
$$\Rightarrow x_1 = 2.25$$




$$M_{max} = \int_0^{x_1} (-100x + 225)\,dx$$
$$= \left[-50x^2 + 225x\right]_0^{2.25}$$
$$= \boxed{253.125\,Nm}$$