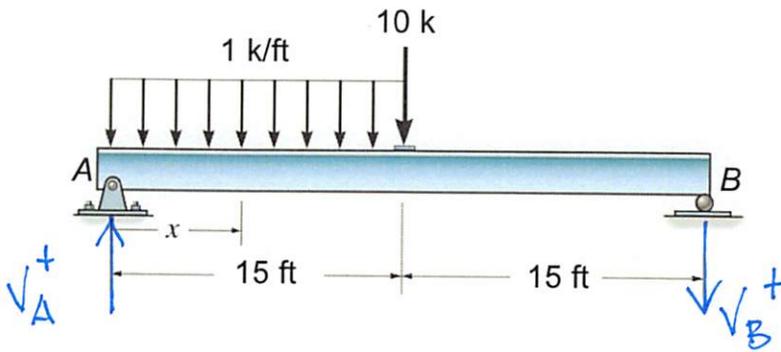


Determine the internal shear force and bending moment as a function of  $x$  throughout the beam.



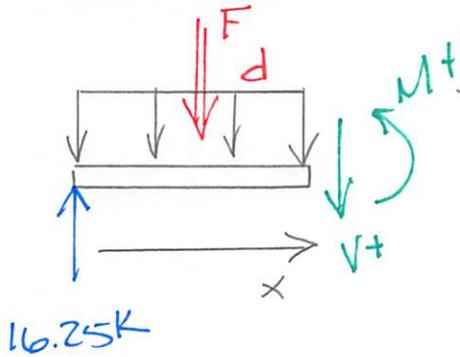
$$\sum M_B = 0 = 10^k(15 \text{ ft}) + 15k(22.5 \text{ ft}) - V_A(30 \text{ ft})$$

$$V_A = 16.25 \text{ k}$$

$$\sum F_y = 0 = V_A - V_B - 10^k - 15^k$$

$$V_B = -8.75 \text{ k}$$

$0 \leq x \leq 15 \text{ ft}$



16.25 k

$F = x \quad d = \frac{x}{2}$

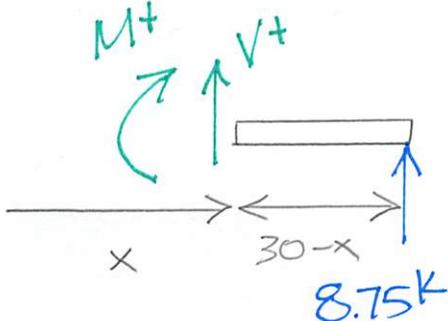
$$\sum M_{cut} = 0 = M + Fd - 16.25x$$

$$M(x) = \left[ -\frac{x^2}{2} + 16.25x \right] \text{ k ft}$$

$$\sum F_y = 0 = -V - F + 16.25 \text{ k}$$

$$V(x) = [-x + 16.25] \text{ k}$$

$15 \leq x \leq 30 \text{ ft}$



$$\sum M_{cut} = 0 = -M + 8.75(30-x)$$

$$M(x) = [8.75(30-x)] \text{ k ft}$$

$$\sum F_y = 0 = V + 8.75 \text{ k}$$

$$V(x) = -8.75 \text{ k}$$