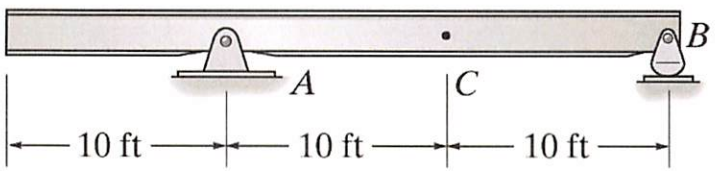
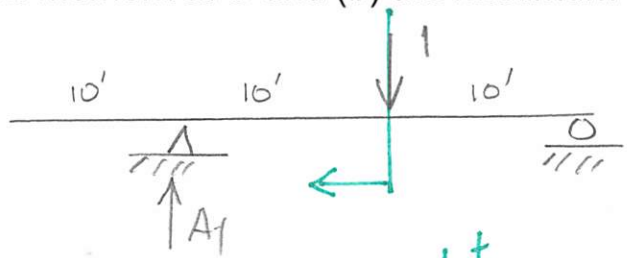
Example 6b-3: The beam supports a uniform dead load of 300 lb/ft, a uniform live load of 600 lb/ft, and a single live concentrated force of 20 k. Determine (a) the maximum positive moment at *C* and (b) the maximum positive shear at *C*.

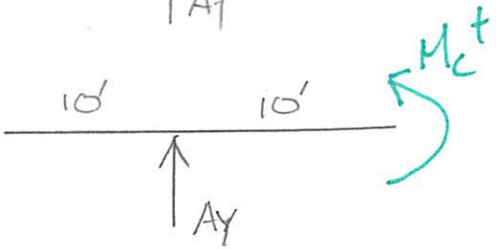




$\circlearrowleft + \sum M_B = 0$

$= 1(10') - A_Y(20')$

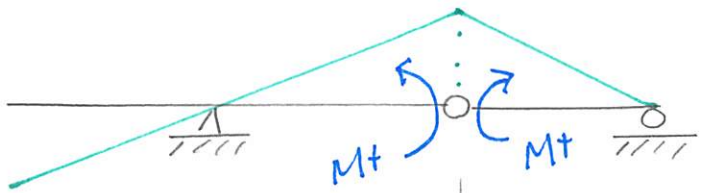
$A_Y = 1/2$

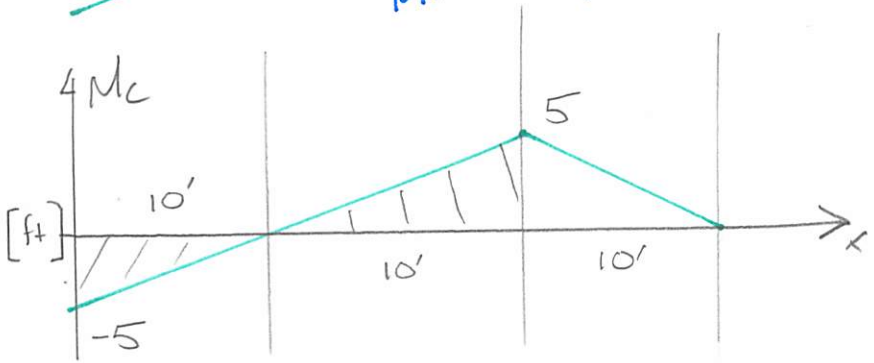


$\circlearrowleft + \sum M_{cut} = 0$

$= M_C - A_Y(10')$

$M_C = 5\ k\text{-}ft$





$M_{C_{MAX}} = 137.5\ k\text{-}ft$

CONCENTRATE LIVE LOAD

$20^k(5ft) = 100\ k\text{-}ft$

UNIFORM DEAD LOAD

$0.3\ k/ft\left(\frac{1}{2}\right)\left[10ft(-5ft) + 20ft(5ft)\right] = 7.5\ k\text{-}ft$

UNIFORM LIVE LOAD

$0.6\ k/ft\left(\frac{1}{2}\right)\left[20ft(5ft)\right] = 30\ k\text{-}ft$