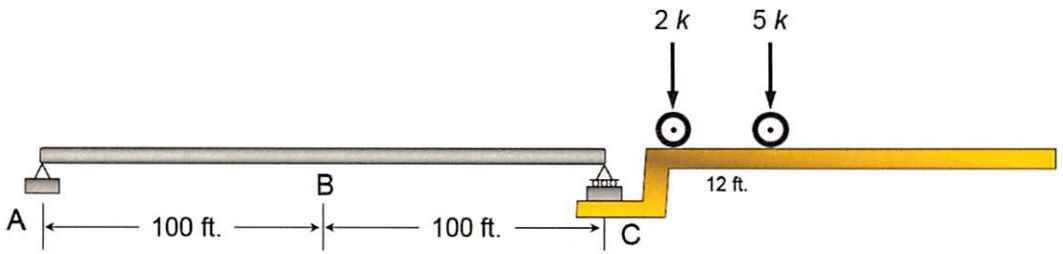
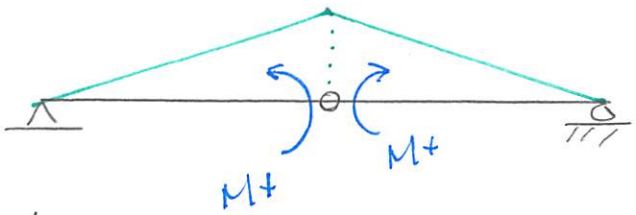
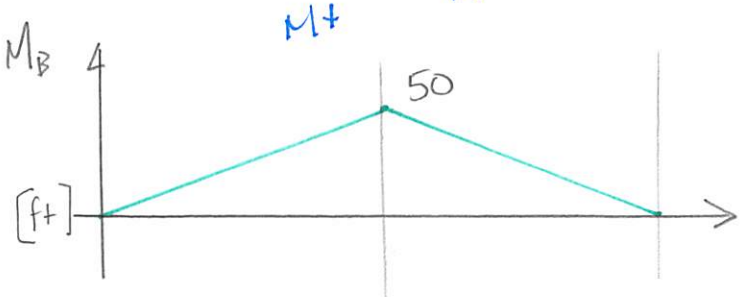
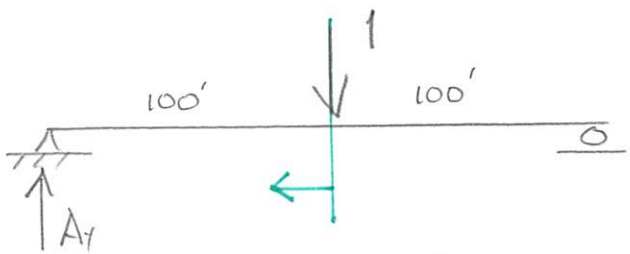
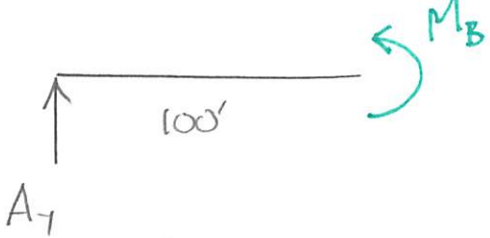
Example 6c-1: Determine the maximum moment created at point B in the beam below due to the wheel loads of a moving truck traveling from right to left.











$\circlearrowleft \Sigma M_C = 0$

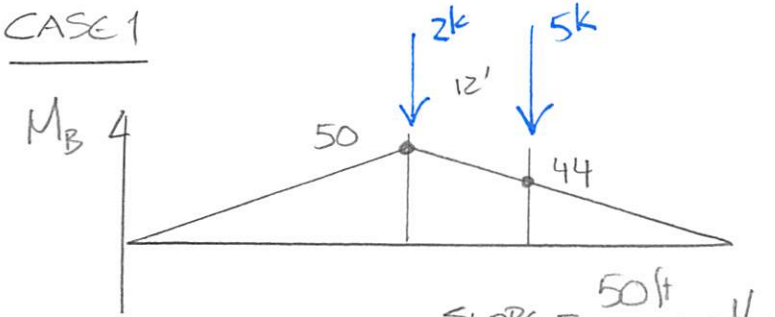
$= 1(100') - A_Y(200')$

$A_Y = 1/2$

$\circlearrowleft \Sigma M_{CUT} = 0$

$= M_B - A_Y(100')$

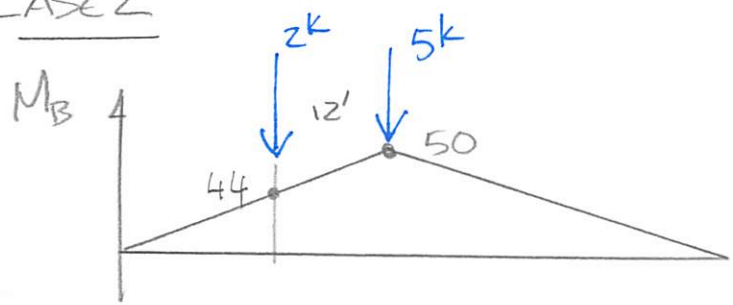
CASE 1



$SLOPE = \frac{50\,ft}{100\,ft} = 1/2$

$M_{B_1} = 2k(50\,ft) + 5k(44\,ft) = 320\,k\,ft$

CASE 2



$M_{B_2} = 2^k(44\,ft) + 5^k(50\,ft) = 338\,k\,ft$

$M_{B_{MAX}} = 338\,k\,ft$