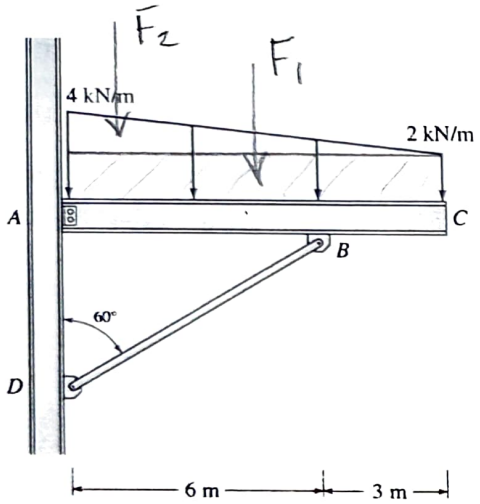
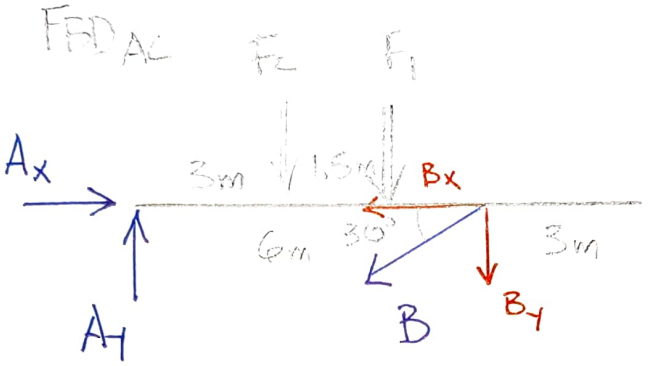
Example 2a-3: Find the reactions



FBD AC



$B_y = B\sin 30°$

$B_x = B\cos 30°$

$\circlearrowleft + \Sigma M_A = 0 = -9kN(3m) - 18kN(4.5m) - B_y(6m)$

$B = -36\ kN$

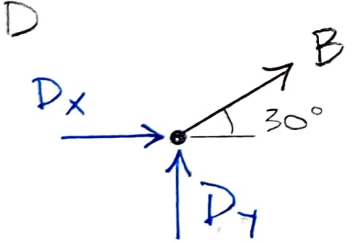
$F_1 = 9m(2kN/m) = 18kN$

$F_2 = \frac{1}{2}(9m)\,2kN/m = 9kN$

$+\uparrow \Sigma F_y = 0 = A_y - B\sin 30° - 18kN - 9kN$

$A_y = 9kN$

JOINT D



$+\uparrow \Sigma F_y = 0 = D_y + B\sin 30°$

$D_y = 18kN$

$\pm\rightarrow \Sigma F_x = 0 = D_x + B\cos 30°$

$D_x = 31.18\ kN$

$\pm\rightarrow \Sigma F_x = 0 = A_x - B\cos 30°$

$A_x = -31.18\ kN$

SZ4