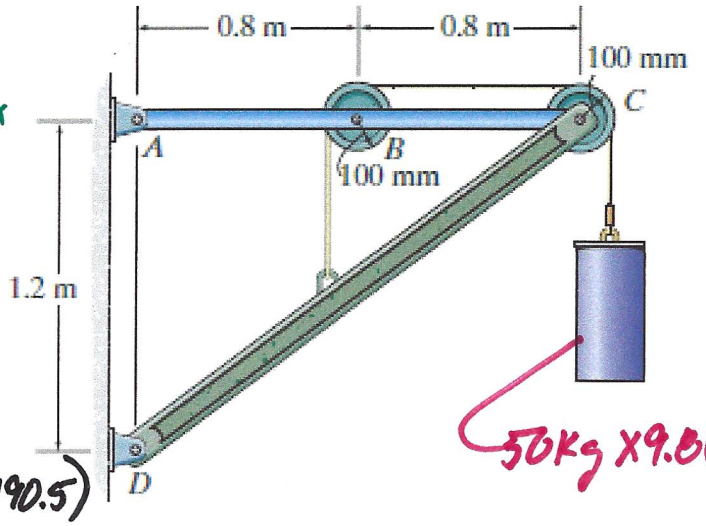
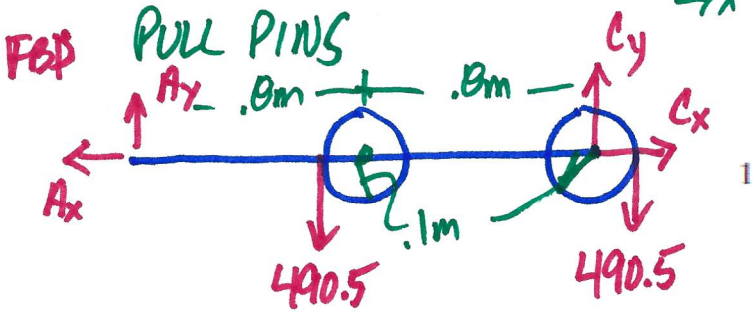
Problem 14: The frame is used to support the 50-kg cylinder. Determine the horizontal and vertical components of reaction at *A* and *D*.





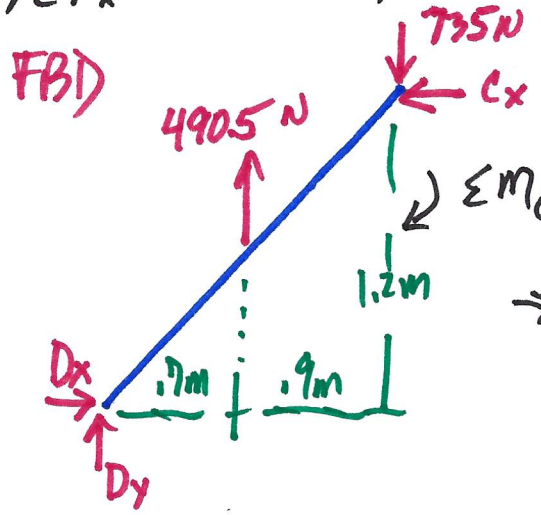
50kg x 9.81 = 490.5N

$\curvearrowleft \Sigma M_A = 0 = .7(490.5) - 1.6C_y + 1.7(490.5)$

$C_y = 735\ N \uparrow$ ON ABC

$\uparrow \Sigma F_y = 0 = A_y - 490.5 - 490.5 + 735$ $\quad A_y = 245N \uparrow$

$\rightarrow \Sigma F_x = 0 = -A_x + C_x$ $\quad A_x = C_x$



$\uparrow \Sigma F_y = 0 = -735 + 490.5 + D_y$ $\quad D_y\ 244.5N \uparrow$

$\curvearrowleft \Sigma M_C = 0 = -1.2D_x + 1.6(244.5) + 490.5(.9)$

$D_x = 694N \rightarrow$

$\rightarrow \Sigma F_x = 0 = 694 - C_x$

$C_x = 694\ N \leftarrow$ ON CD

$A_x = C_x = 694N \leftarrow$

ANSWER:	Ax = 695 N ←	Dx = 695 N →
	Ay = 245 N ↑	Dy = 245 N ↑