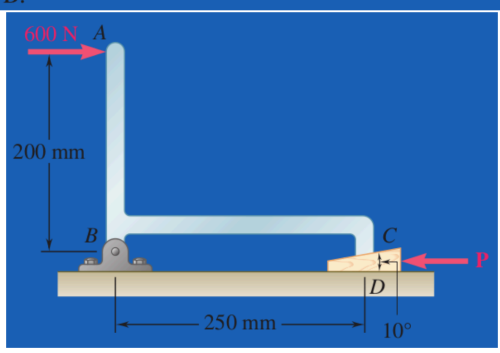
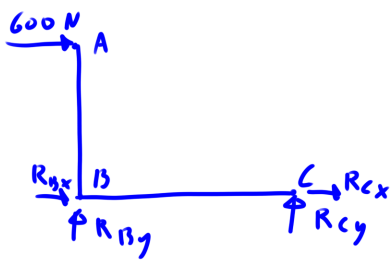
The machine part ABC is supported by a frictionless hinge at B and a 10° wedge at C. Knowing that the coefficient of static friction is 0.20 at both surfaces of the wedge, determine (*a*) the force **P** required to move the wedge to the left, (*b*) the components of the corresponding reaction at B.



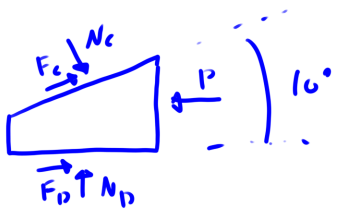


$\sum M_B = 0$

$-200 \cdot 600 + 250\, R_{Cy} = 0$

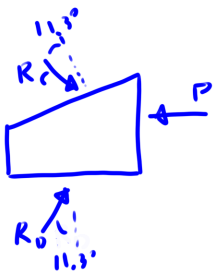
$200 \cdot 600 = 250\, R_{Cy}$

$\frac{200 \cdot 600}{250} = R_{Cy} = 480\ N$



$N_D = R_{Cy} = 480\ N$

$\phi_s = \tan^{-1}(0.2) = 11.3°$



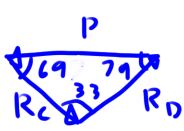
$\cos\phi_s = \frac{N_D}{R_D} \Rightarrow R_D = \frac{N_D}{\cos\phi_s}$

$= \frac{480}{\cos 11.3}$

$= 489\ N$

$90 - 11.3 - 10 = 68.7°$

$90 - 11.3 = 78.7°$



$180 - 68.7 - 78.7 = 32.6$

$\frac{R_D}{\sin 68.7} = \frac{P}{\sin 32.6}$

$\frac{R_D \sin 32.6}{\sin 68.7} = P$

$\frac{489 \sin 32.6}{\sin 68.7} = \boxed{233\ N = P}$