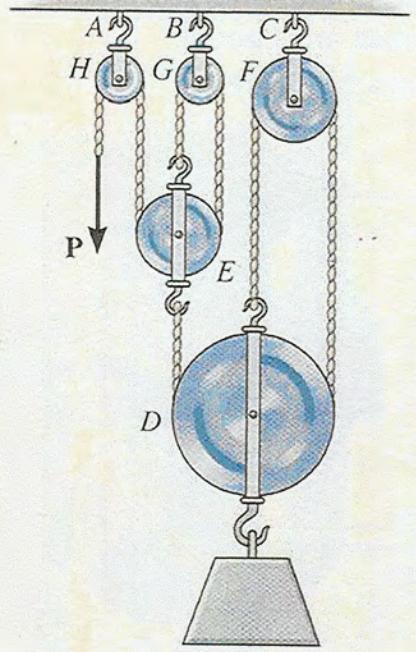
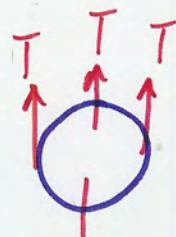


Problem 2 – Pulleys

Determine the force P needed to support the 20-kg mass using the *Spanish Burton rig*. Also, what are the reactions at the supporting hooks A, B, and C?



FBD of D

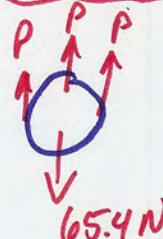


$$\uparrow \sum F_y = 0 = 3T - 196.2$$

$$T = 65.4 \text{ N}$$

$$20 \times 9.81 = 196.2 \text{ N}$$

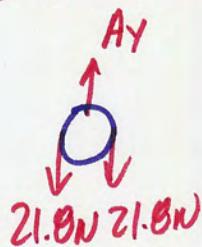
FBD of E



$$\uparrow \sum F_y = 0 = 3P - 65.4 \text{ N}$$

$$P = 21.8 \text{ N}$$

FBD of H



$$\uparrow \sum F_y = 0 = A_y - 21.8 - 21.8$$

$$A_y = 43.6 \text{ N} \uparrow$$

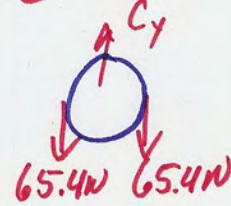
FBD of G



$$\uparrow \sum F_y = 0 = B_y - 21.8 - 21.8$$

$$B_y = 43.6 \text{ N} \uparrow$$

FBD of F



$$\uparrow \sum F_y = 0 = C_y - 65.4 - 65.4$$

$$C_y = 130.8 \text{ N} \uparrow$$