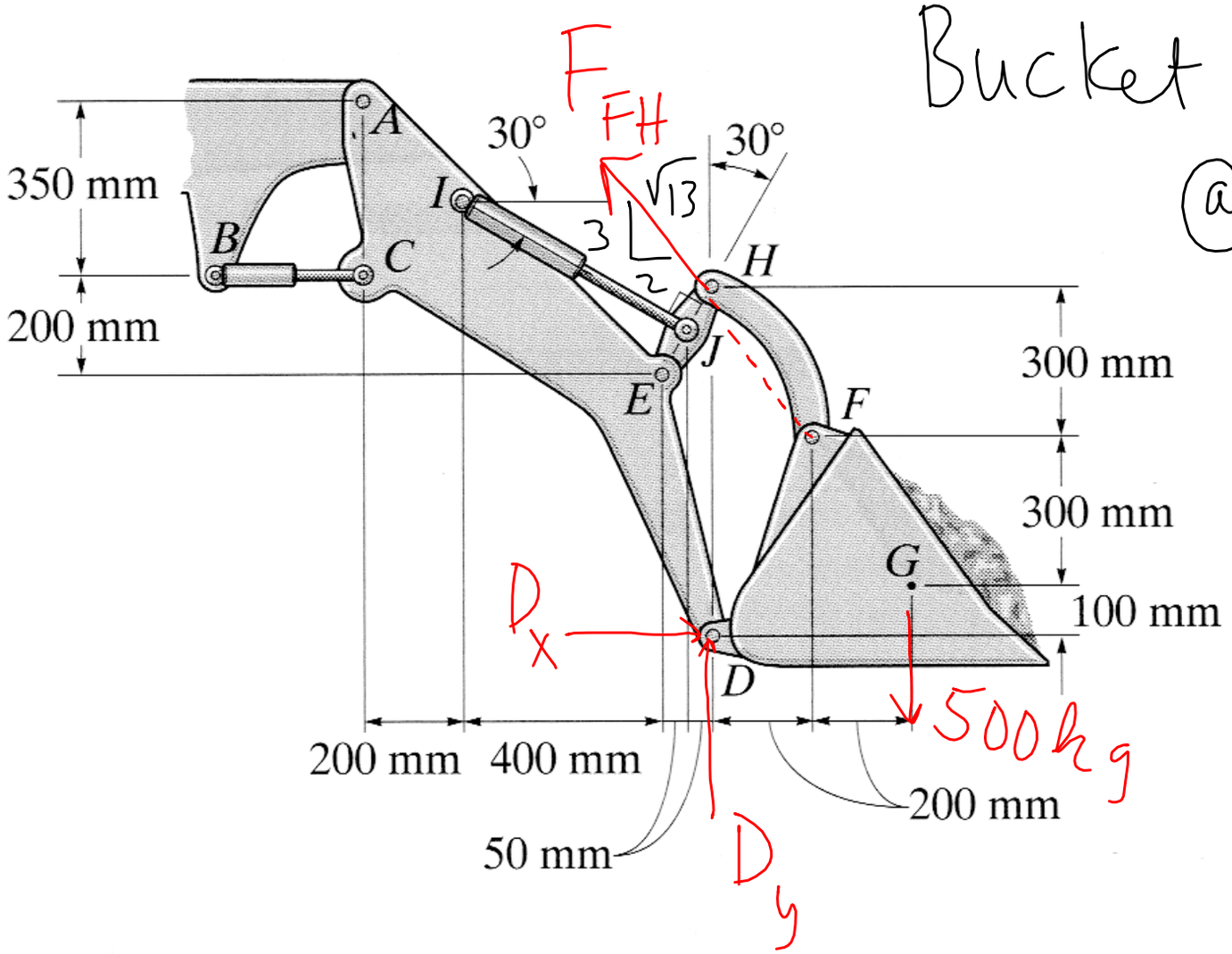


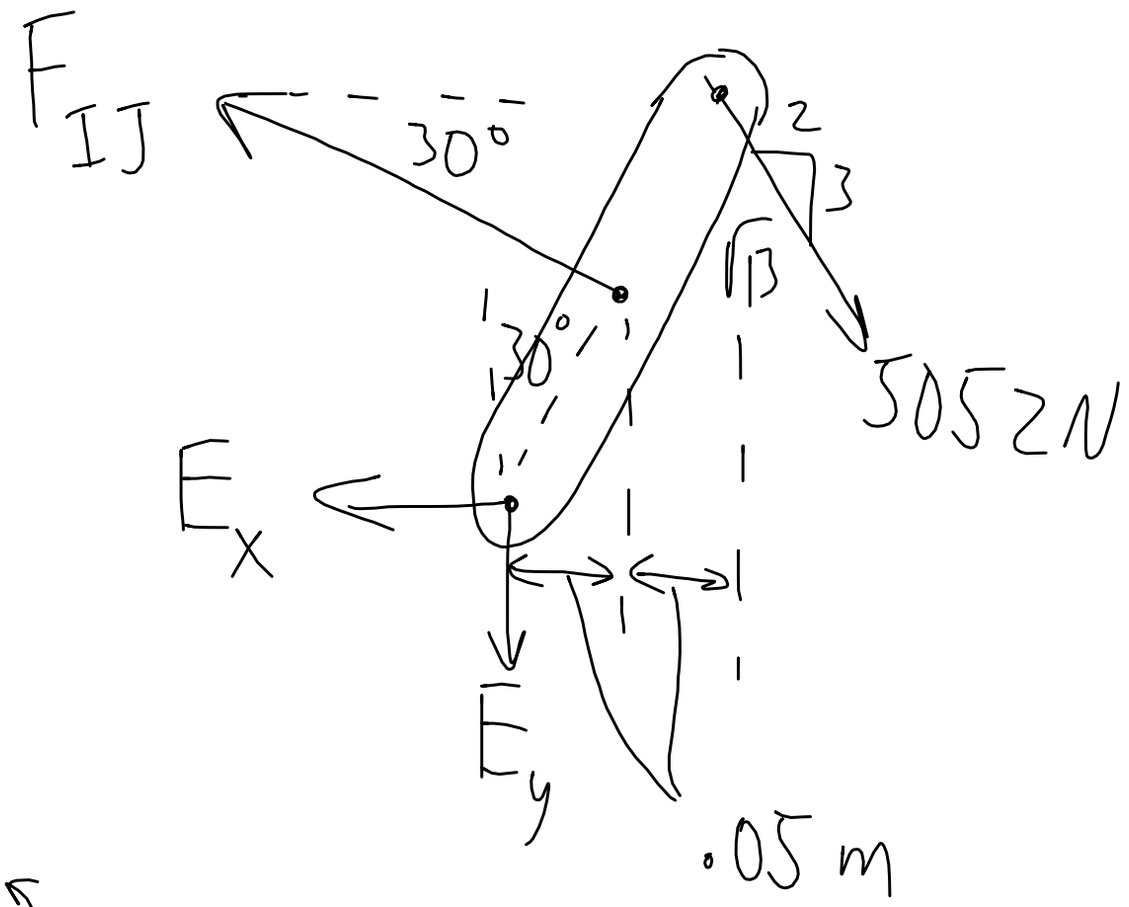
Bucket + dirt = 500kg @ G

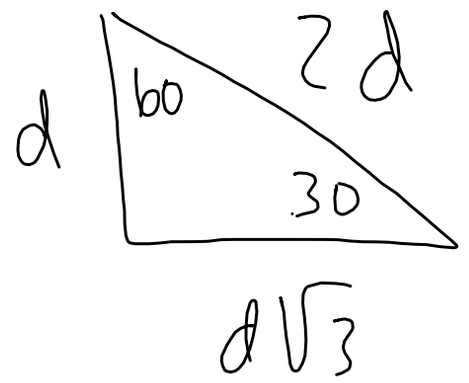
Find F_{IJ}

FBD of bucket + strut FH

$$+\circlearrowleft \sum M_D = -500(.4) + F_{FH}\frac{2}{\sqrt{13}}(.7) = 0$$

$$F_{FH} = 515 \times 9.81 = 5052\ N$$





$$\tan 30 = \frac{1}{\sqrt{3}} \quad ?\checkmark$$

$$\cos 30 = \frac{\sqrt{3}}{2}$$

$$\sin 30 = 1/2$$

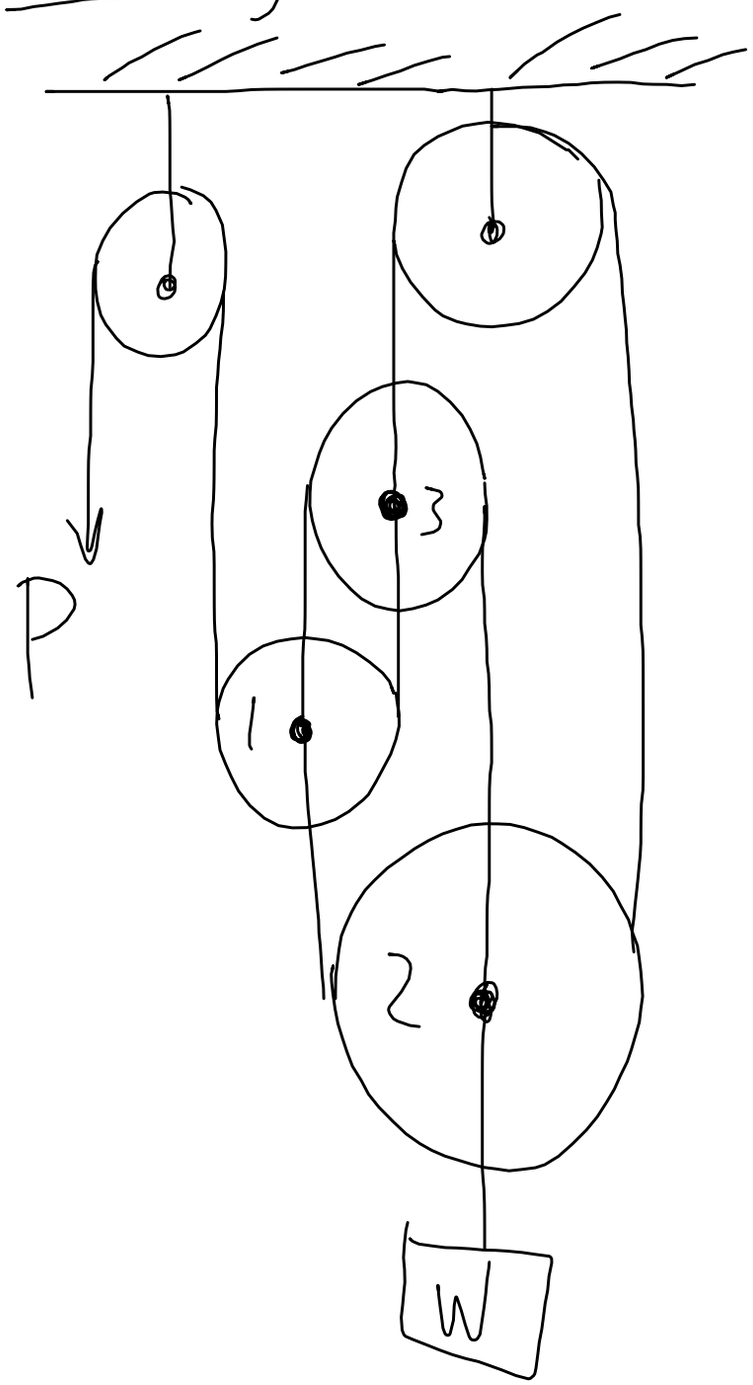
$$\frac{\tan 30}{}$$

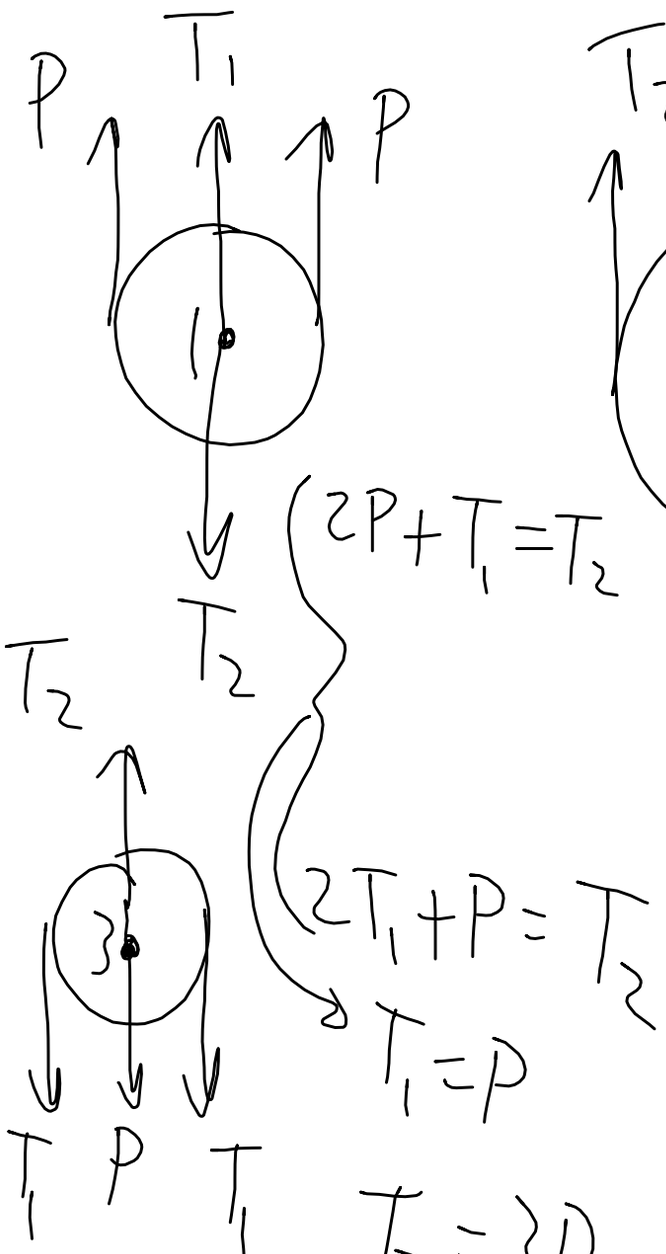
$$+\circlearrowleft \sum M_E = F_{IJ}(.1) - 505\,2\,\frac{3}{\sqrt{13}}(.1) - 505\,2\,\frac{2}{\sqrt{13}}(.1)\sqrt{3} = 0$$

$$F_{IJ} = 9057\ N$$

Pulleys

What is P in terms of W?



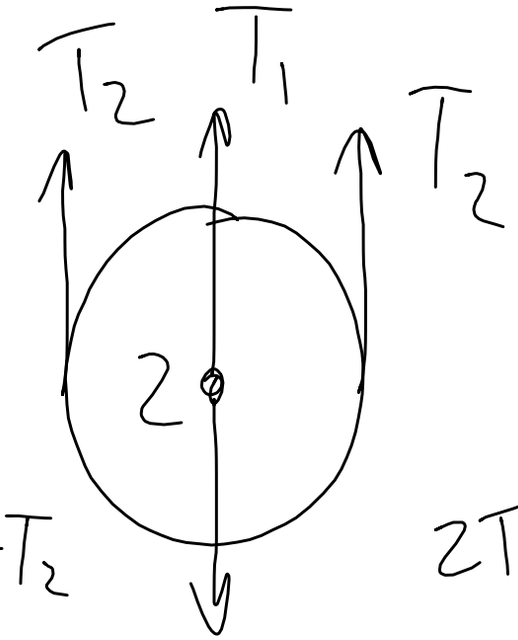


$2P + T_1 = T_2$

$2T_1 + P = T_2$

$T_1 = P$

$T_2 = 3P$



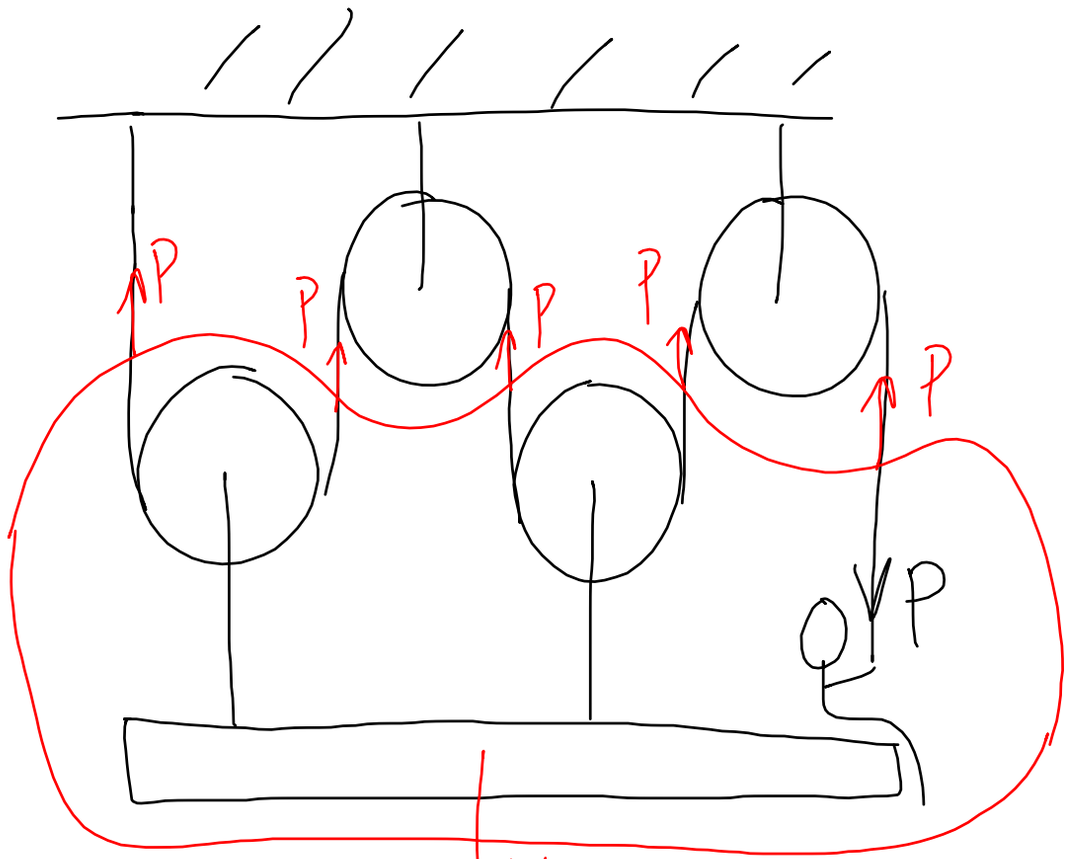
$2T_2 + T_1 = W$

$T_1 = W - 2T_2$

$P = W - 2(3P)$

$W = 7P$

$P = \frac{W}{7}$



Plank + person weight W

$P = P(W)$?

$P = \frac{W}{5}$