

Soru 1

a)

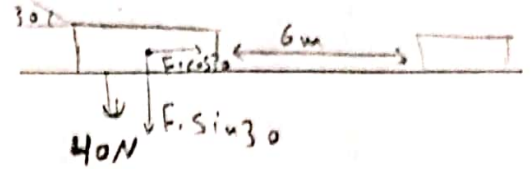
$$F_s = F \cdot \cos(30)$$

$$M_k \cdot N = F \cdot \cos(30)$$

$$0,38(m \cdot g + F \cdot \sin(30)) = F \cdot \cos(30)$$

$$0,38(392 + \frac{a}{2}) = \frac{\sqrt{3}}{2} \cdot a$$

$$\Rightarrow a = 222,32 \text{ N} \Rightarrow \boxed{F = 222,32 \text{ N}}$$



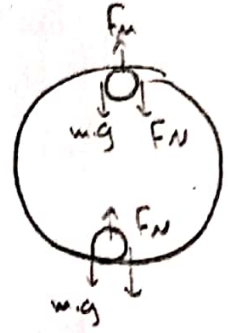
b)  $W = F \cdot d \cdot \cos \theta \Rightarrow W = 222,32 \times 6 \times 0,86$

$$\Rightarrow \boxed{W = 1147,17 \text{ J}}$$

c)  $W_s = F_s \cdot x = M_s \cdot N \cdot x = 0,38(392 + F \cdot \sin 30)6$

$$\Rightarrow \boxed{x = -1147,97 \text{ J}}$$

Soru 2)



- En alt noktasında:  $F = m \cdot a$

$$N - w \cdot g = m \cdot \frac{V_{alt}^2}{r}$$

$$3,8 = 0,05 \cdot \frac{V_{alt}^2}{0,9} + 0,05 \cdot 9,8$$

$$3,8 = \frac{0,05 \cdot V_{alt}^2}{0,9} + 0,49$$

$$0,05 \cdot V_{alt}^2 = 0,9 \cdot 3,31 \Rightarrow \boxed{V_{alt} = 7,71 \text{ m/s}}$$

- Enerji korunumunda:  $K_{alt} = K_{üst} + W_{net}$

$$\frac{1}{2} m \cdot V_{alt}^2 = \frac{1}{2} m \cdot V_{üst}^2 + m \cdot g \cdot h$$

$$\frac{V_{alt}^2}{2} = \frac{1}{2} V_{üst}^2 + 9,8 \times 0,9$$

$$33,1 = 88,2 + \frac{V_{üst}^2}{2} \Rightarrow \boxed{V_{üst} = 6,46 \text{ m/s}}$$

- En üst noktasında:  $F = m \cdot a$

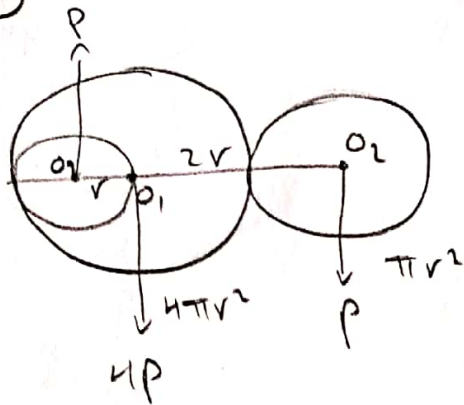
$$m \cdot g + N = m \cdot \frac{V_{üst}^2}{r}$$

$$N = m \cdot \frac{V_{üst}^2}{r} - m \cdot g \Rightarrow N = 0,05 \cdot \frac{41,73}{0,9} - 0,05 \times 9,8$$

$$\Rightarrow \boxed{N = 1,82 \text{ N}}$$

Сору 3)

②



$$x = \frac{P_v + 3P_v}{4P} = \frac{4P_v}{4P} = v$$

(b)

$$P_{\text{son}} = P_{\text{ilk}}$$

$$V_{a,m} = 60 \cdot 0,6$$

$$\Rightarrow V_a = 36 \text{ m/s}$$

$$V_{K.M} = 60 \cdot 0,8$$

$$V_k = 48 \text{ m/s}$$

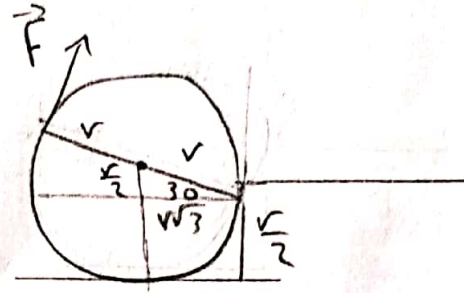


Soru 4)

a)

$$F \cdot 2r = G \cdot \frac{\sqrt{3}}{2} r$$

$$F = \frac{6 \cdot \sqrt{3}}{2} \Rightarrow \boxed{F = 5.17 \text{ N}}$$



b)

- yön

$$1br \cdot 2br \rightarrow F_2$$

$$2br \cdot 1br \rightarrow F_1$$

$$\underline{-4br^2}$$

+ yön

$$1br \cdot 1br \rightarrow F_1$$

$$1br \cdot 2br \rightarrow F_2$$

$$2br \cdot 2br \rightarrow F_3$$

$$\underline{7br^2}$$

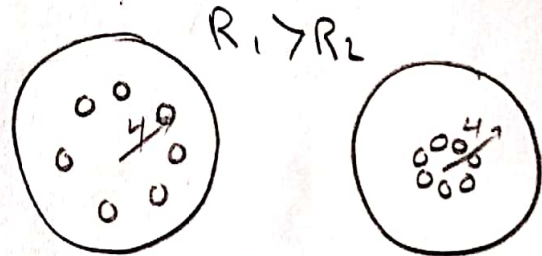
$$\boxed{T = +3br^2}$$

c)

$$\boxed{I = \frac{1}{2} m \cdot r^2}$$

$$I_a = \frac{1}{2} m \cdot R_1^2 \quad / \quad I_b = \frac{1}{2} m \cdot R_2^2$$

$$R_1 > R_2 \Rightarrow \boxed{I_a > I_b}$$



merkeze göre  
yarıçap