

① 20 ~~25~~ 80

80 = ~~40~~

$$E_k = \frac{p^2}{2m}$$

$m_1 = 10 \quad E_{k1} = 80$

$m_2 = 5 \quad E_{k2} = 160$

$v_1 = 4$

$v_2 = 8$

⑦ pred: $v = \sqrt{2gL}$

$\frac{88}{10} \quad 400$

$\frac{4}{20}$

600

znázka 22H

$$\frac{1}{2} m_1 v^2 = \frac{1}{2} m_1 u^2 + \frac{1}{2} m_2 w^2$$

$$m_1 v = m_1 u + m_2 w$$

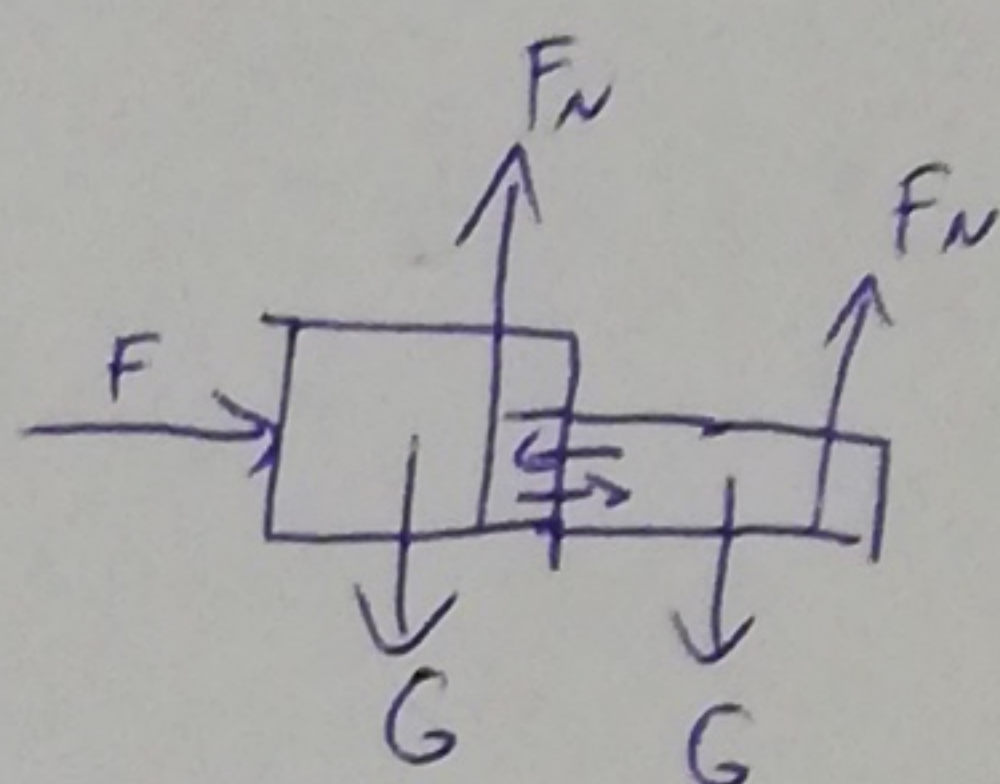
$$u = \frac{(m_1 - m_2)v}{m_2 + m_1}$$

⑩ $T = m_1 a$
 $F = m_1 a$

$F = (m_2 + m_1 a)$

$a = \frac{F}{m_1 + m_2}$

$F = \frac{m_2 F}{m_1 + m_2}$



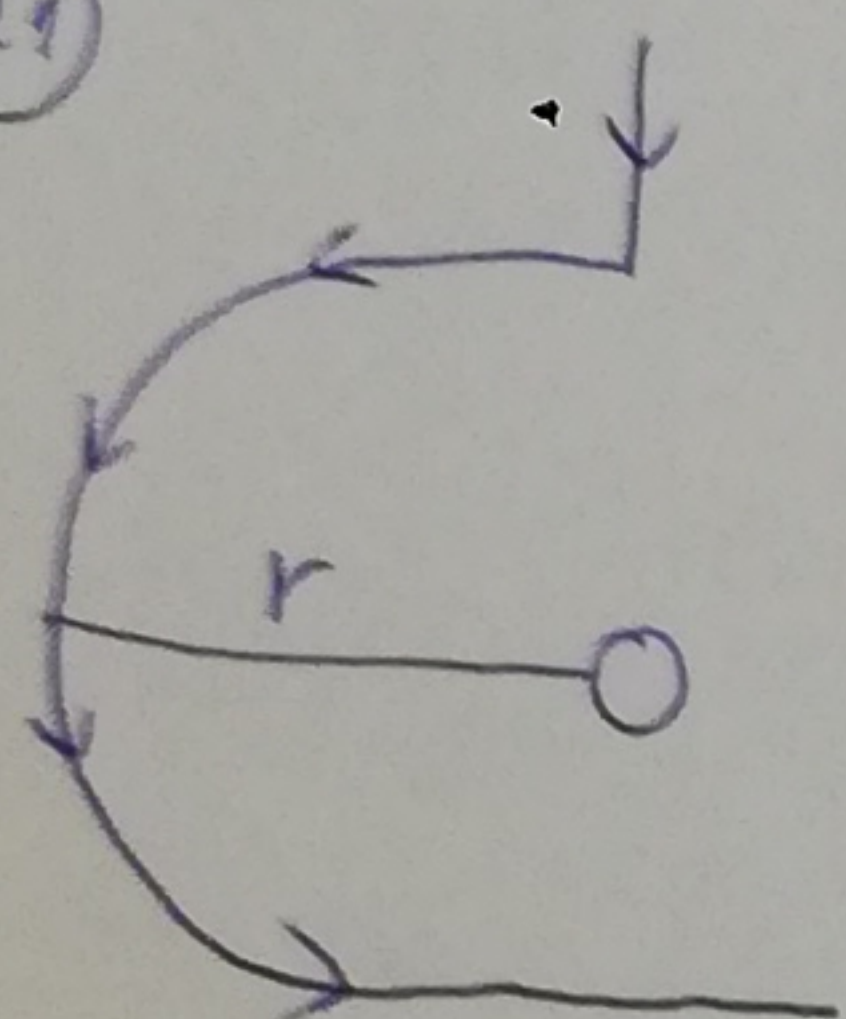
$F' = m_2 a$

$F' = m_2 \frac{F}{m_1 + m_2}$

④6 prácu koná časť sily rovnobežná s vektorom posunutia

②1

kolmá časť neprispieva



$$dB = \frac{\mu_0 I}{4\pi} \cdot \frac{dl \times r}{r^3} \Rightarrow$$

$$= \frac{\mu_0 I}{4\pi} \cdot \frac{dl \cdot r \cdot \sin \varphi}{r^3} \Rightarrow$$

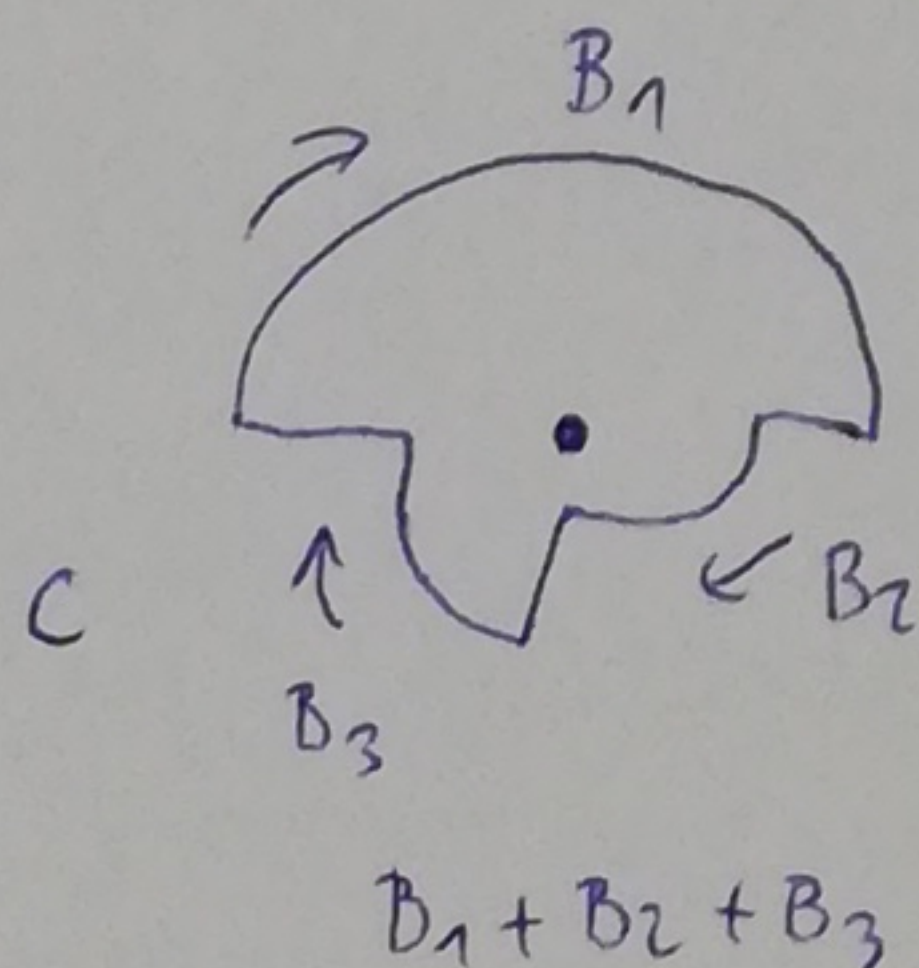
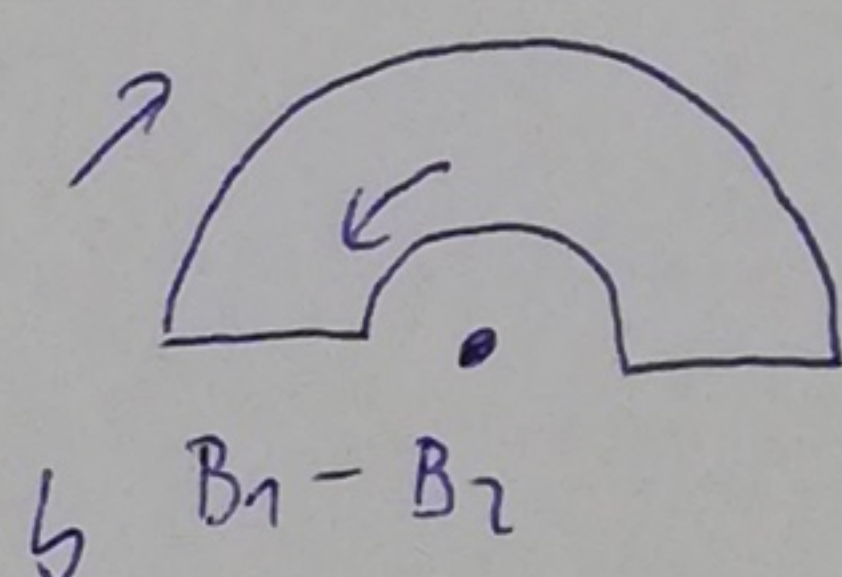
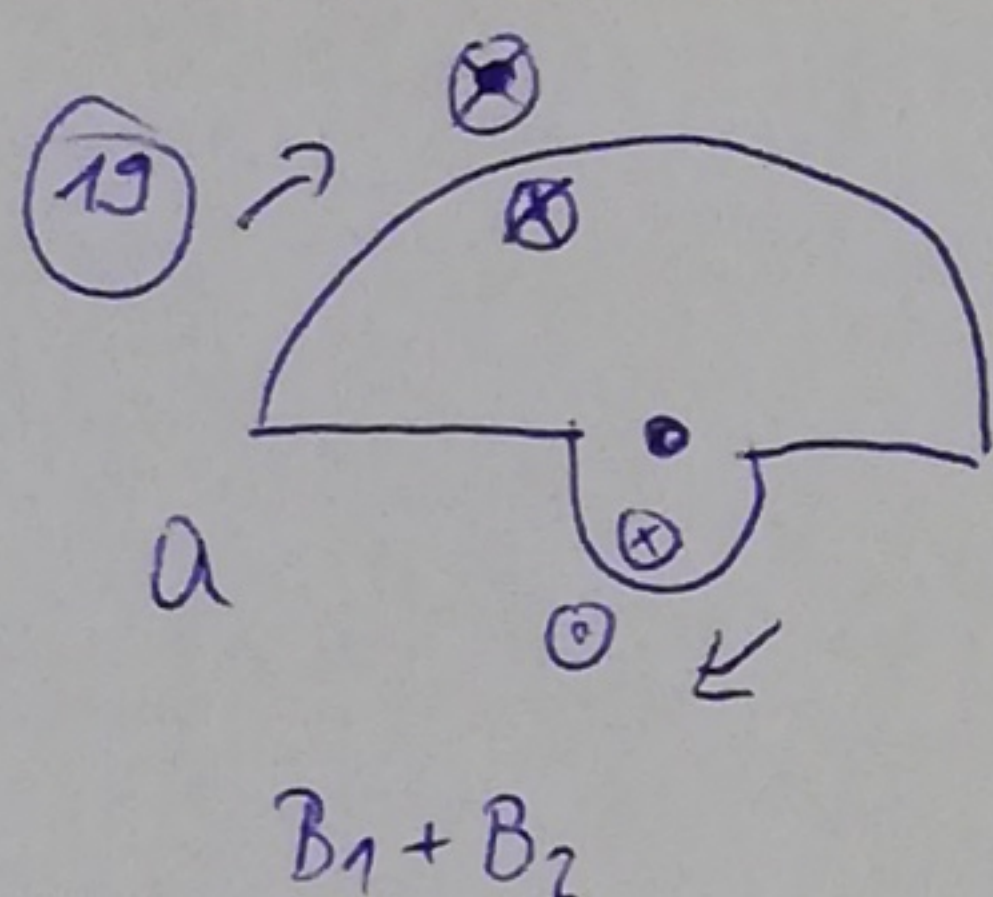
$$= \frac{\mu_0 I}{4\pi r}$$

④4 $x = At^2 - Bt^3$

$v = dx/dt \Rightarrow$ zderivovať

$x = 2At - 3Bt^2$

$0 = 2At - 3Bt^2 \Rightarrow A/3B$



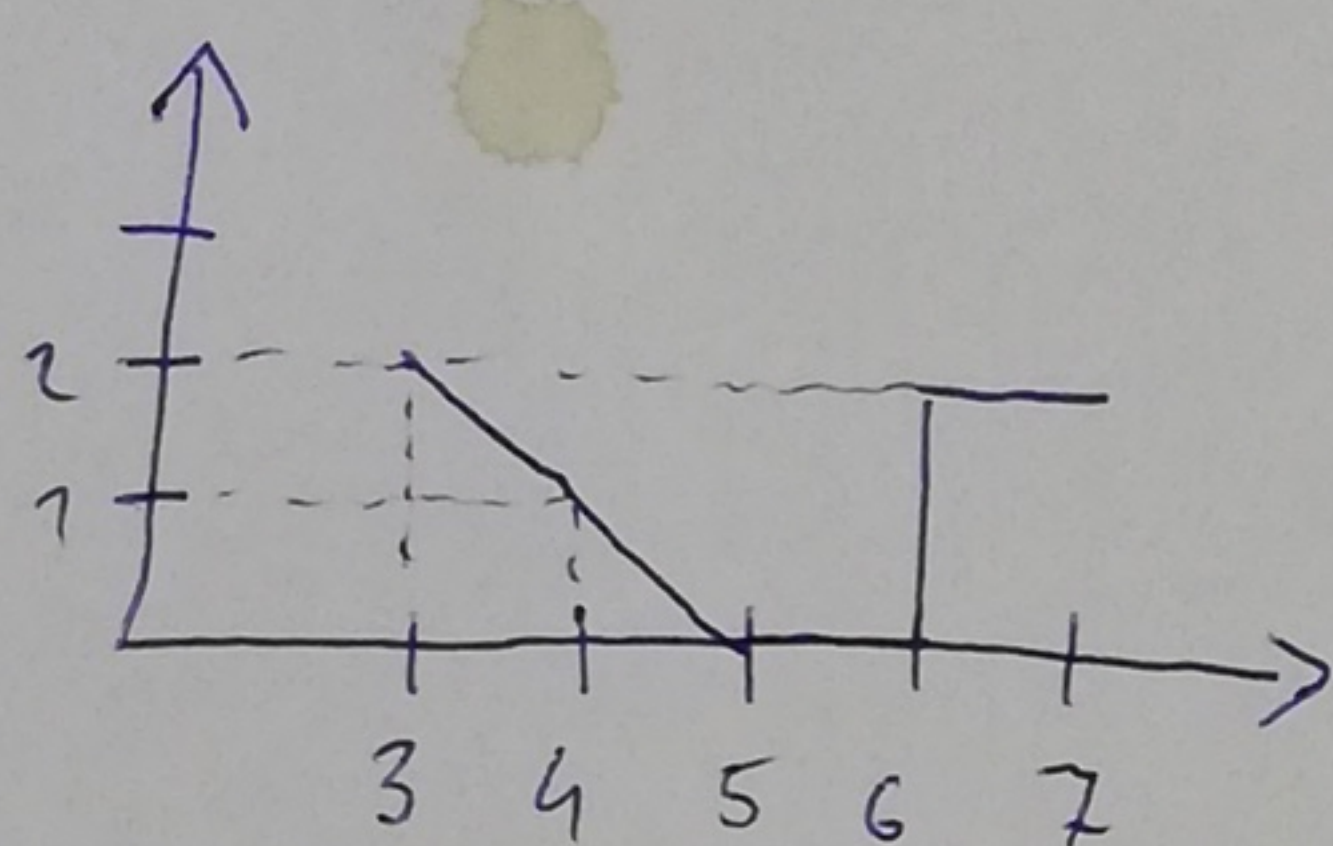
~~W~~ $c > a > b$

3) pri pravej sa E_k zachováva

22) medzi 3 a 7

$$\Delta x = \frac{1}{2} \cdot 2 \cdot 2 + 1 \cdot 2$$

$$= 4$$



8) nezáleží od tvaru, každá plocha = guľa $\oint_{\text{guľa}} \vec{E} d\vec{s} / \oint_{\text{plocha}} \vec{E} d\vec{s} = 1$

26) $f_s = \frac{mg \sin \varphi}{mg \cos \varphi} = \tan \varphi = \tan 30^\circ = 0,577$

11) $B' = \frac{2I}{h} = \frac{4I}{h} = 4B \quad B = \frac{I}{h}$

$$B = \mu_0 I$$

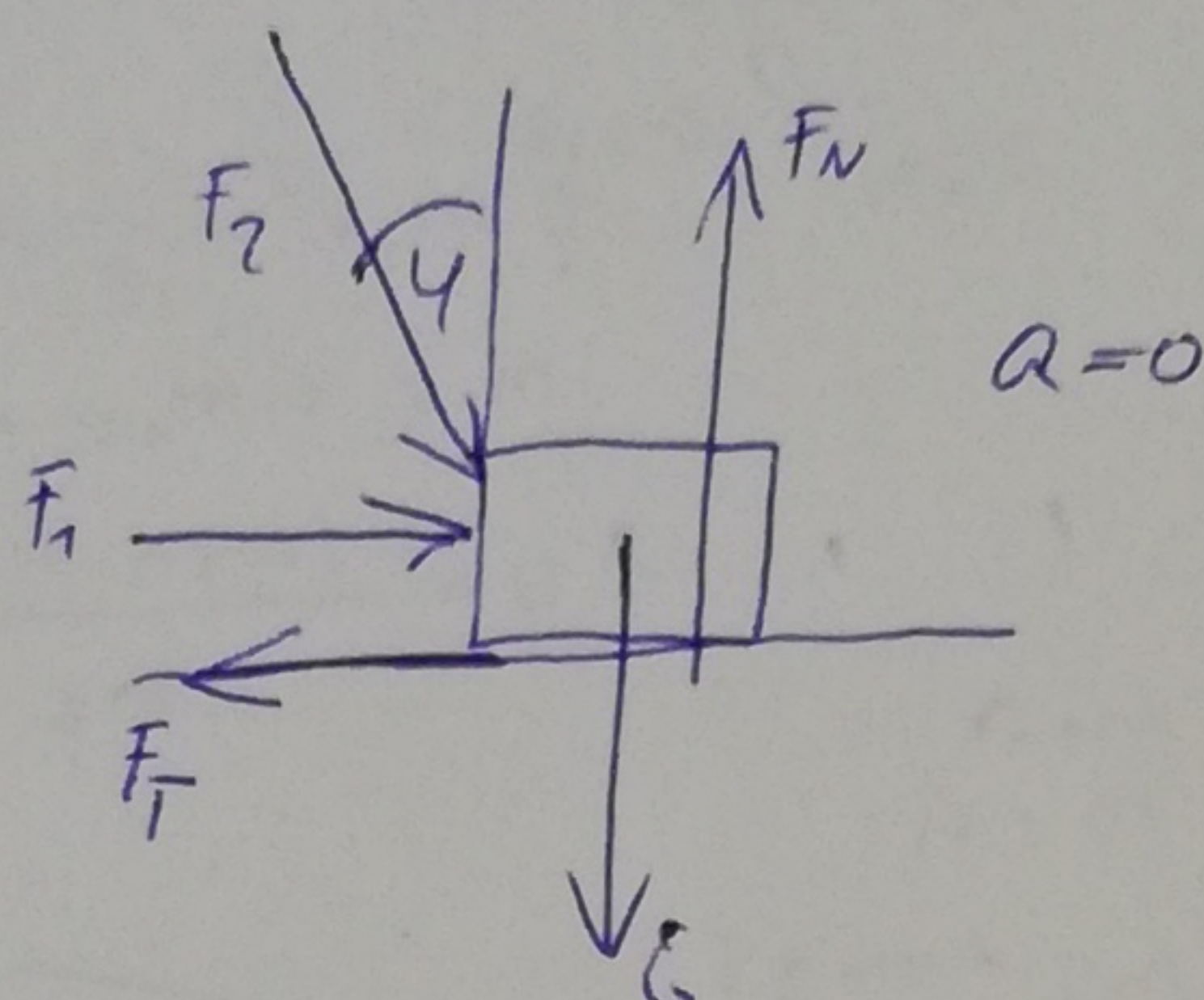
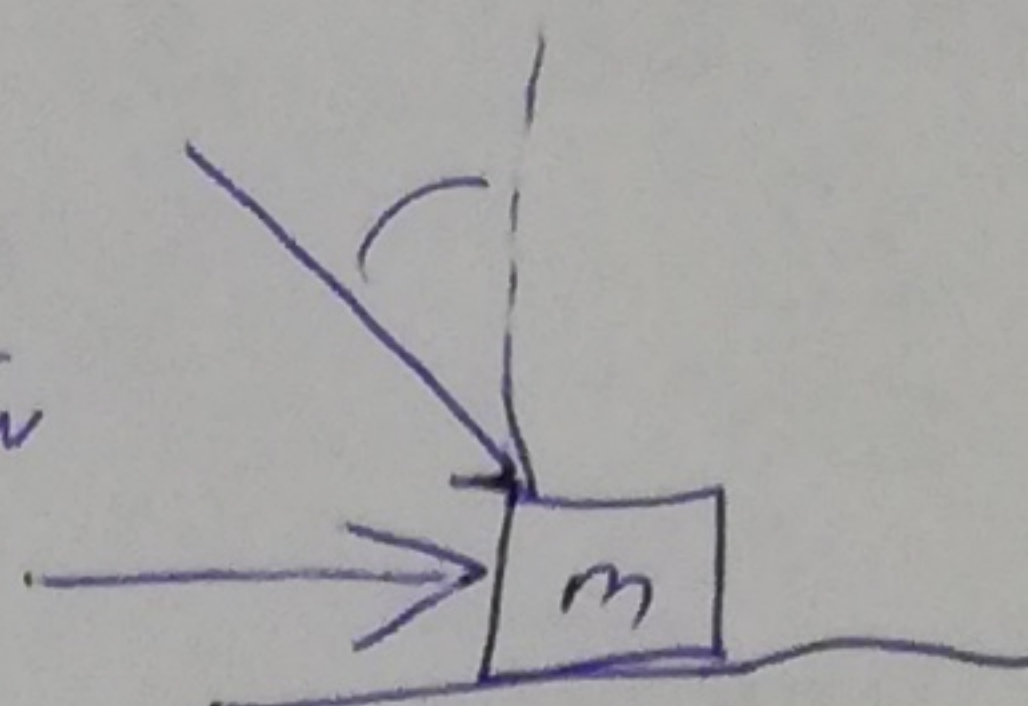
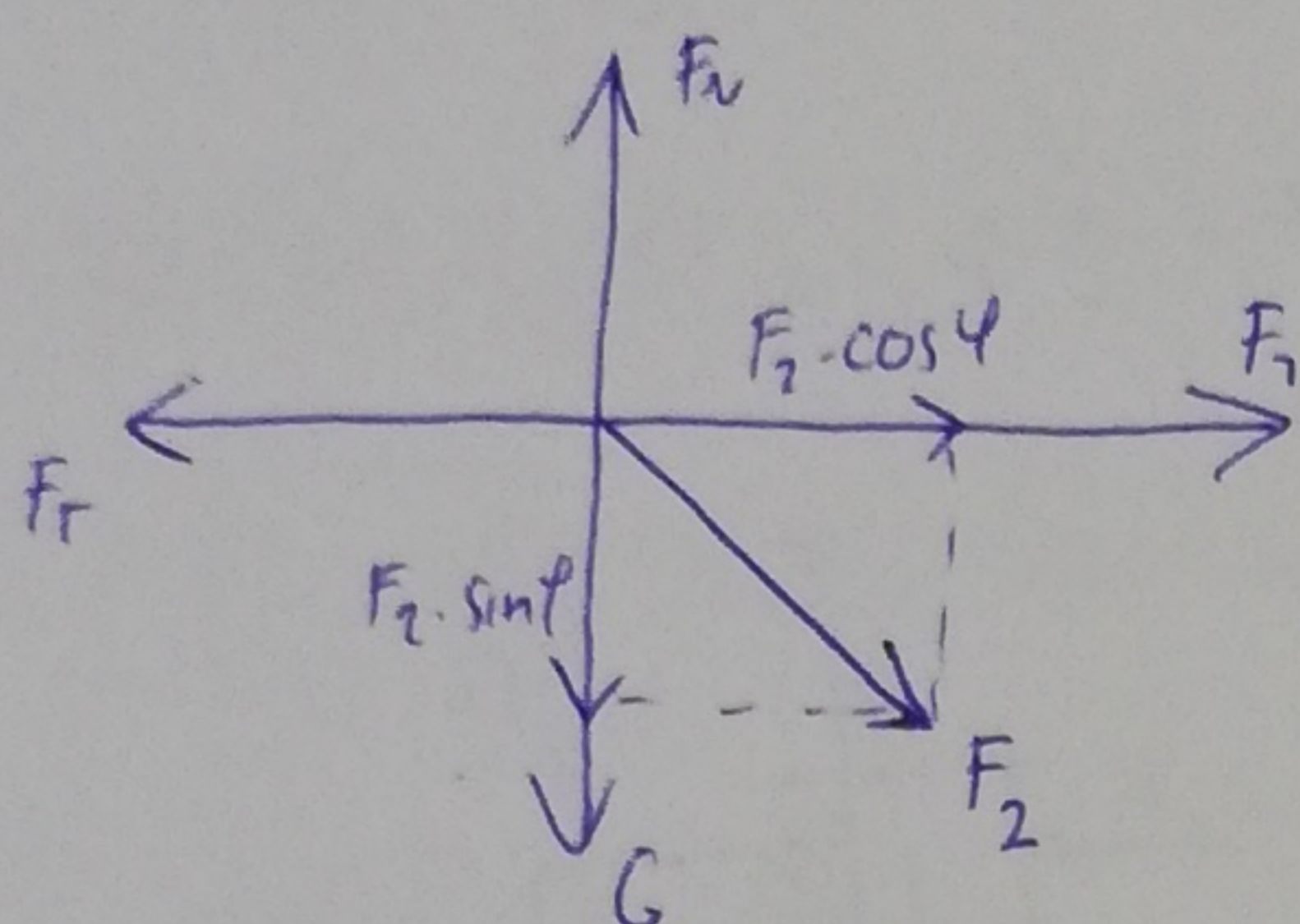
$$\mu_0 2I \frac{1}{2h}$$

$$= B$$

③ $\Sigma F_x = m \cdot a_x = 0$

$$= F \cdot \cos \varphi - F_T = F \cos \varphi - f_d \cdot F_N$$

$$F \cdot \cos(\varphi) - f_d F_N = 0$$



$$\Sigma F_y = 0$$

$$= F_N - F_2 \sin \varphi - G = 0$$

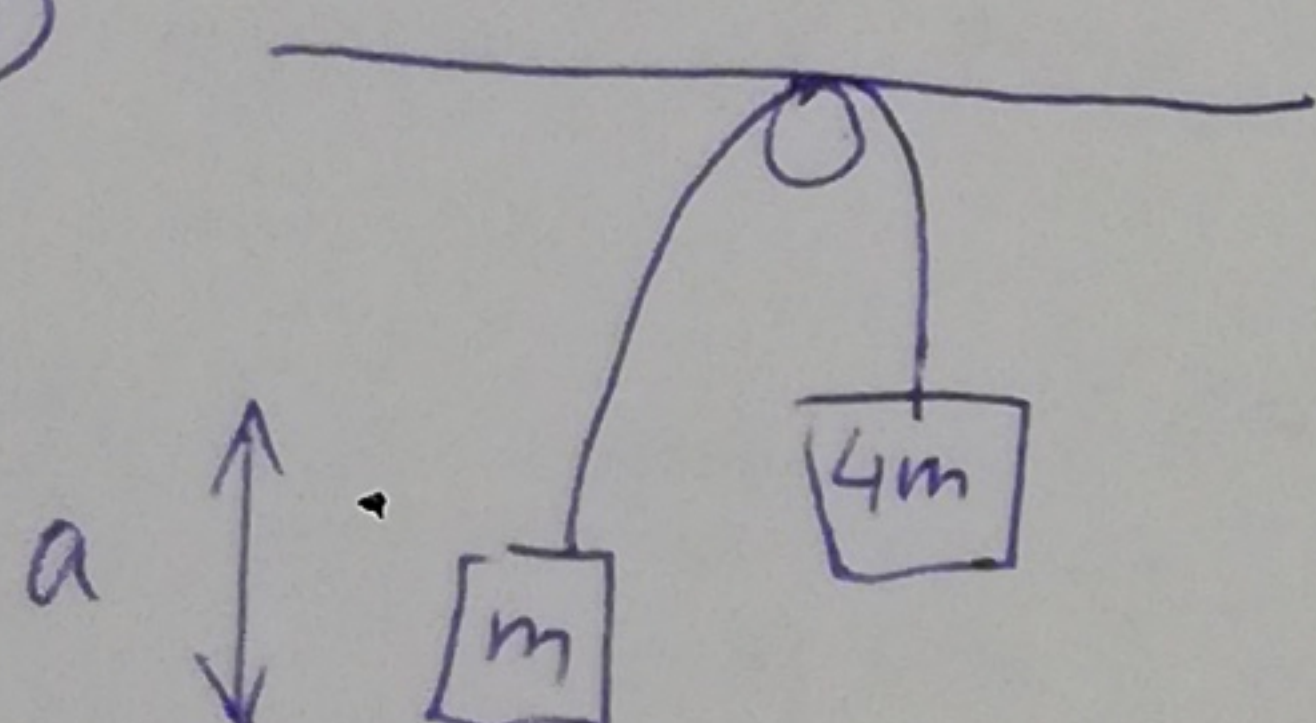
$$F_1 + F_2 \sin \varphi - f_s (\cos \varphi + mg) = 0$$

$$f_s = \frac{F_1 + F_2 \sin \varphi}{mg + F_2 \cos \varphi}$$

$$\Sigma F_x = 0$$

$$= F_1 + F_2 \cos \varphi - F_T = 0$$

④



$$\Sigma F_x = m_2 a_x = 0$$

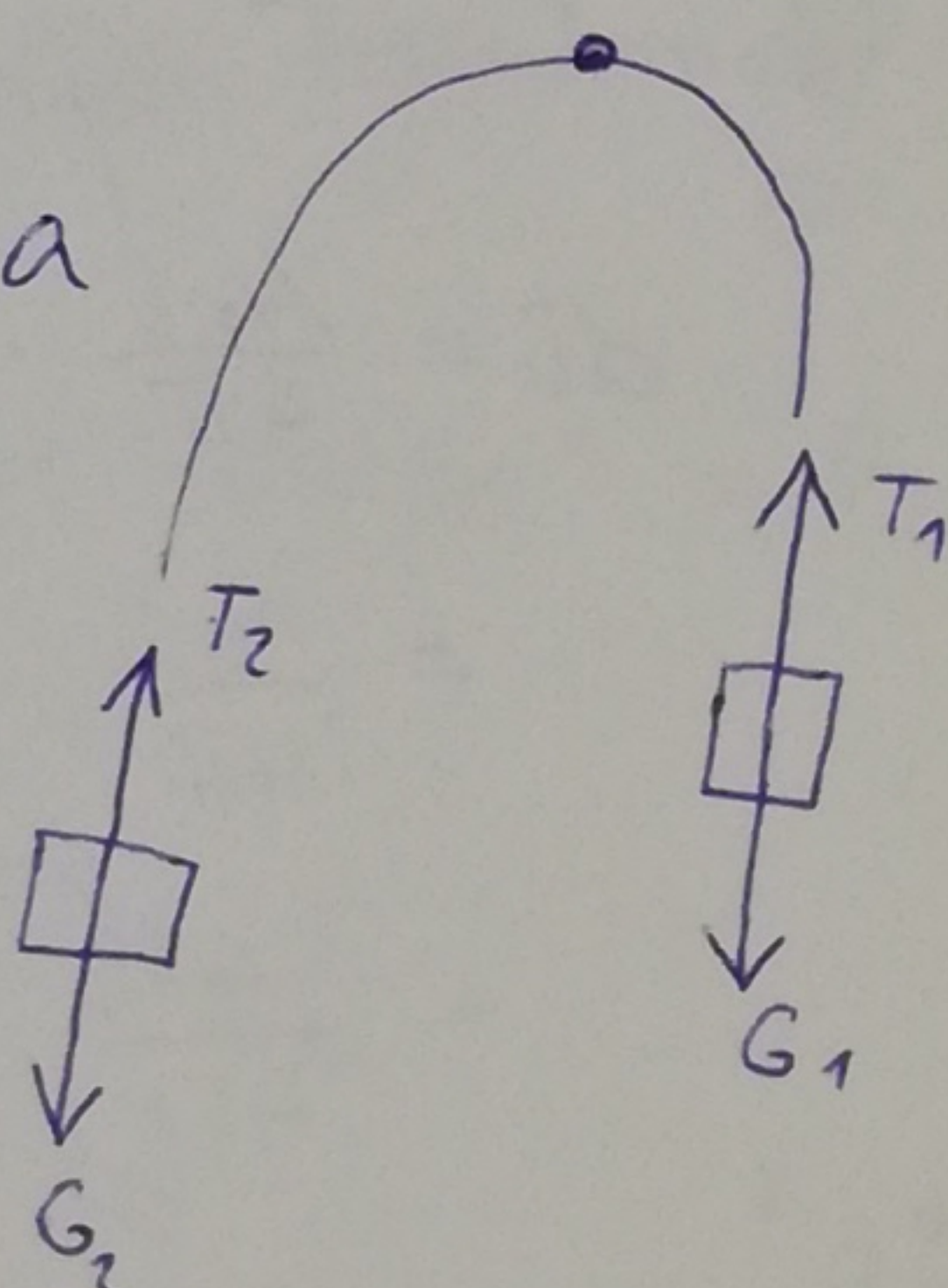
$$\Sigma F_y = m_2 a_y = T - G_1 = T - m_2 g$$

$$= m_2 \cdot a$$

$$\Sigma F_y = m_1 \cdot a_y = \dots$$

$$a = 3g/5$$

$$F = m \cdot a$$



$$m_1 g_1 = m_2 a + T$$

$$a_y - m_1 a = -m_1 g + T$$

$$a = \frac{5(4m - m)}{4m + m} \quad a = \frac{5(m_1 - m_2)}{m_1 + m_2}$$

$$a = \frac{3g}{5}$$