

11.11	$x / \text{mm}$	0	2	4	6	8	10	12	14	16
	galsiat	1205	935	769	590	468	371	311	271	210

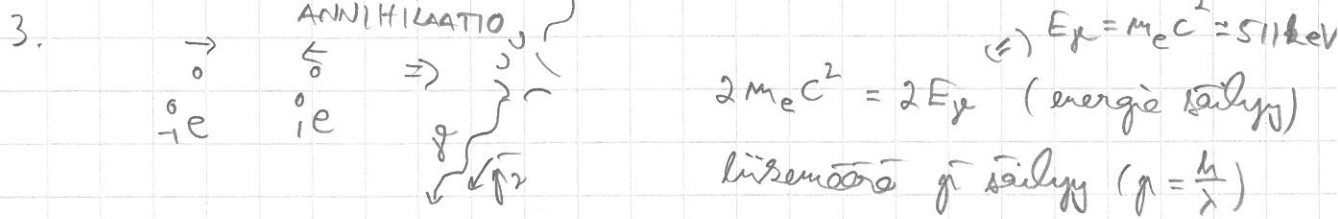
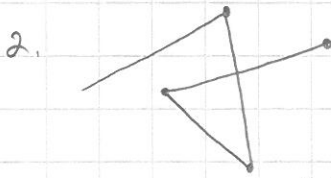
a)  $\gamma$ -säteily heikkenee voimakkaasti eksponentiaalisesti:

$$I = I_0 e^{-\mu x} = 1159,3676 e^{-0,1082 x}$$

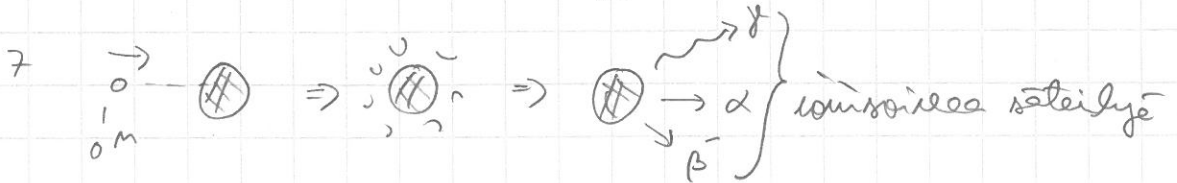
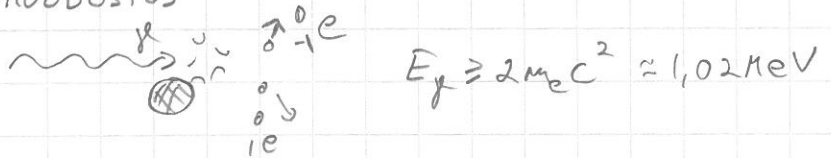
↑  
geogelera

$$\Rightarrow \mu \approx 0,1082 \frac{1}{\text{mm}} = 108,2 \frac{1}{\text{m}} \approx \underline{\underline{110 \frac{1}{\text{m}}}}$$

b) haavainmäärä  $x \approx 22,7 \text{ cm} \approx \underline{\underline{23 \text{ cm}}}$

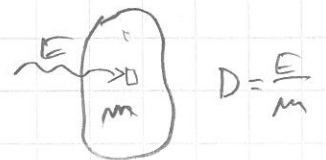


PARINKUUDOSTUS



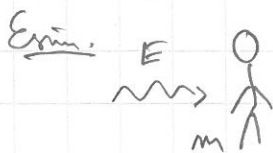
$$D = \frac{dE}{dm}$$

$$[D] = \frac{\text{J}}{\text{kg}} = \text{Gy}$$



$$H = QD$$

$$[H] = \frac{\text{J}}{\text{kg}} = \text{Sv}$$



$$D = 6 \text{ Gy}$$

$$k = 4,2 \frac{\text{J}}{\text{kg} \cdot \text{K}}$$

$$D = \frac{E}{m} \Leftrightarrow E = Dm$$

Toisalta:  $E = k m \Delta t$

$$\Rightarrow Dm = k m \Delta t \quad | : (km)$$

$$\Leftrightarrow \Delta t = \frac{D}{k} = \frac{6 \frac{\text{J}}{\text{kg}}}{4,2 \cdot 10^3 \frac{\text{J}}{\text{kg} \cdot \text{K}}} \approx 0,0014 \text{ } ^\circ\text{C}$$