

Protokoll Physik

Datum: 23.11.11

Abwesende Schüler: /

Thema der Stunde:

Protokolant: Lars S.

Elektromagnetismus

Lösungen:

S.23 A2 $F = 2,3 \cdot 10^{-5} \text{ N}$

S.25 A4 $W = 8 \cdot 10^{-20} \text{ J}$

$$v = 9790 \frac{\text{m}}{\text{s}}$$

S.27 A3 a) $F = 1,6 \cdot 10^{-15} \text{ N}$

$s = 20 \text{ cm}$ $a = 1,76 \cdot 10^{15} \frac{\text{m}}{\text{s}^2}$

$$v = 1,88 \cdot 10^7 \frac{\text{m}}{\text{s}}$$

b) $t = 2,13 \text{ ns}$

S.27 A4 a) $a = 1,23 \cdot 10^{14} \frac{\text{m}}{\text{s}^2}$

$$U_0 = 5,93 \cdot 10^6 \frac{\text{m}}{\text{s}}$$

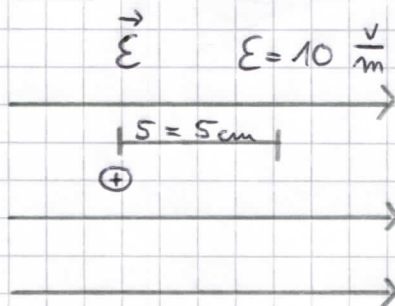
$$t = 2,2 \cdot 10^{-8} \text{ s}$$

S.27 A1 a) $U_y = 150 \text{ V}$

b) $y = 1,875 \text{ cm}$

$$U_z = 120 \text{ V}$$

S.25 A4:



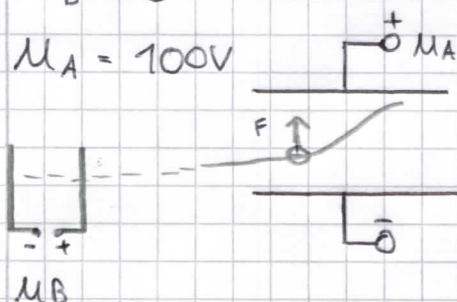
$$W = F \cdot s = q \cdot E \cdot s = 8 \cdot 10^{-20} \text{ J}$$

$$W = \frac{1}{2} m v^2 \Rightarrow v = \sqrt{\frac{2W}{m}} = 9790 \frac{\text{m}}{\text{s}}$$

S.27 A3:

$$U_B = 1000 \text{ V}$$

$$U_A = 100 \text{ V}$$



$$U_0 = \sqrt{2 \frac{e}{m} U_B} = 1,88 \cdot 10^7 \frac{\text{m}}{\text{s}}$$

$$E = \frac{F}{q} = \frac{U_A}{d} \Leftrightarrow F = \frac{U_A \cdot e}{d} = 1,6 \cdot 10^{-15} \text{ N}$$

$$F = m \cdot a \Leftrightarrow a = \frac{F}{m} = 1,76 \cdot 10^{15} \frac{\text{m}}{\text{s}^2}$$

$$U_0 = \frac{e}{A} \Leftrightarrow t = \frac{e}{U_0} = 2,13 \cdot 10^{-9} \text{ s}$$

$$s_y = \frac{1}{2} a t^2 = 4 \text{ mm}$$