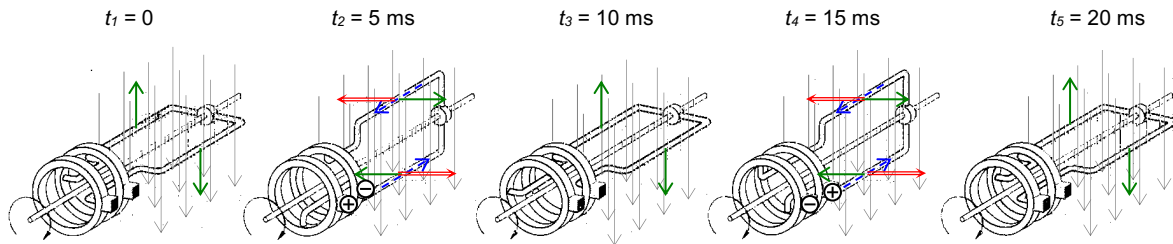


1. a) bis d) siehe Abbildung a) \rightarrow b) \dashrightarrow d) \rightarrow



e) $T = \underline{20 \text{ ms}}$

f) $f = \frac{1}{T} = \frac{1}{0.02 \text{ s}} = \underline{50 \text{ Hz}}$

g) $\omega = 2 \pi f = 2 \pi \cdot 50 \text{ Hz} = \underline{314 \text{ s}^{-1}}$

h) $\hat{U} = n \cdot A \cdot B \cdot \omega = 1 \cdot 0.0216 \text{ m}^2 \cdot 0.45 \text{ T} \cdot 314 \text{ s}^{-1} = \underline{3.05 \text{ V}}$

i) $U_{\text{eff}} = \frac{\hat{U}}{\sqrt{2}} = \frac{3.05 \text{ V}}{\sqrt{2}} = \underline{2.2 \text{ V}}$

2. a) $\hat{U} = 0.03 \text{ V} = \underline{30 \text{ mV}}$

b) zu den Zeiten $t = 0.05 \text{ s}, 0.15 \text{ s}, 0.25 \text{ s}, \text{ etc.}$

c) zu den Zeiten $t = 0, 0.10 \text{ s}, 0.20 \text{ s}, 0.30 \text{ s}, \text{ etc.}$

d) $T = \underline{0.20 \text{ s}}$

e) $f = \frac{1}{T} = \frac{1}{0.20 \text{ s}} = \underline{5.0 \text{ Hz}}$

f) $\omega = \frac{2\pi}{T} = \frac{2\pi}{0.20 \text{ s}} = \underline{31.4 \text{ s}^{-1}}$

g) $B = \frac{U}{n \cdot A \cdot \omega} = \frac{0.030 \text{ V}}{182 \cdot (0.5 \text{ m})^2 \cdot 2\pi \cdot 5.0 \text{ Hz}} = \underline{2.1 \cdot 10^{-5} \text{ T}}$