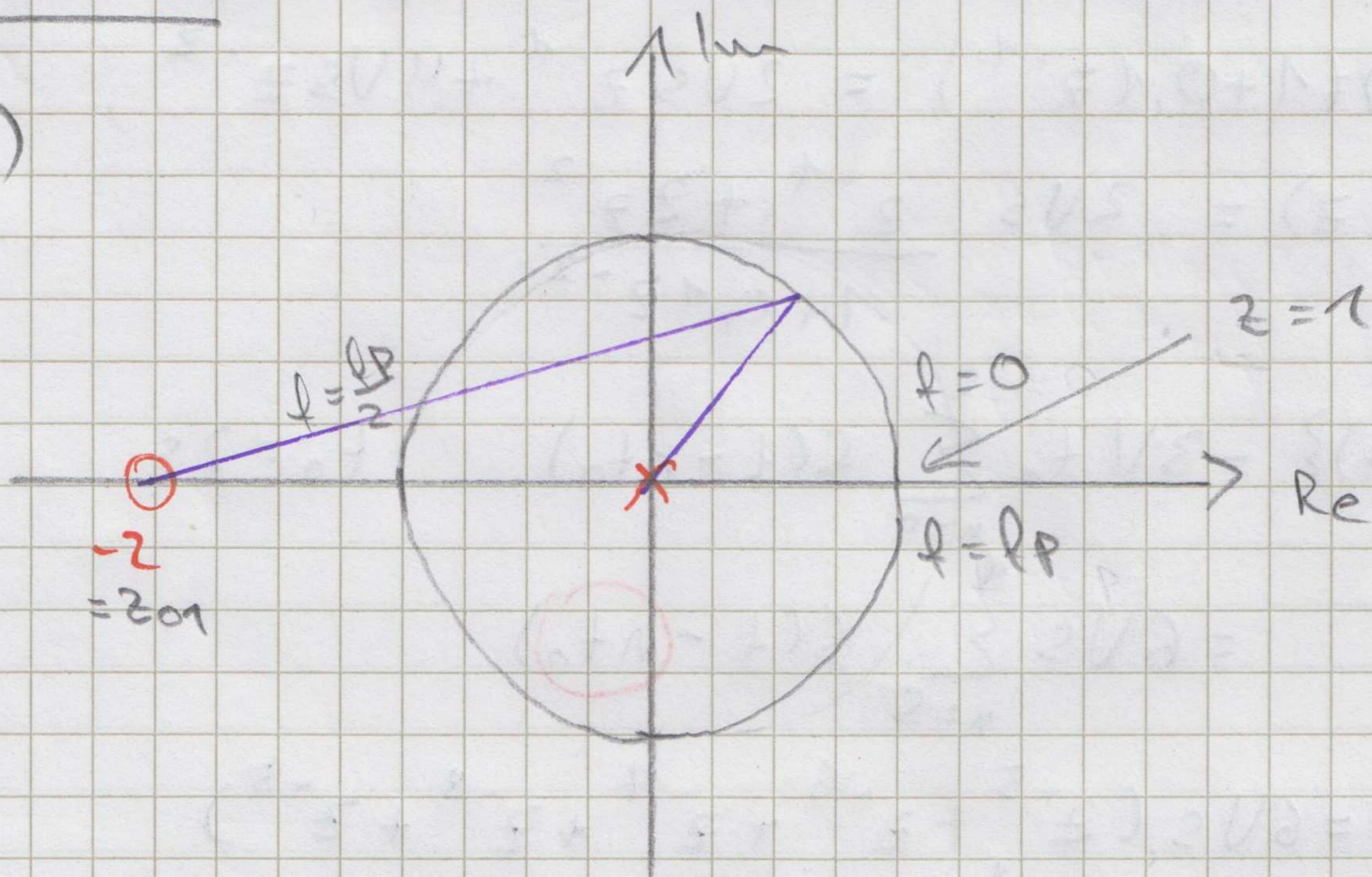


II.4.3

a)



Abstand zur Nullstelle maximal bei $f = 0$.

Polstelle hat keinen Einfluss auf $|H(f)|$

→ Tiefpass (Pol- und Nullstellen vertauscht: HP)

b) FIR - Filter (Nullstelle: endliche Stoßantwort)

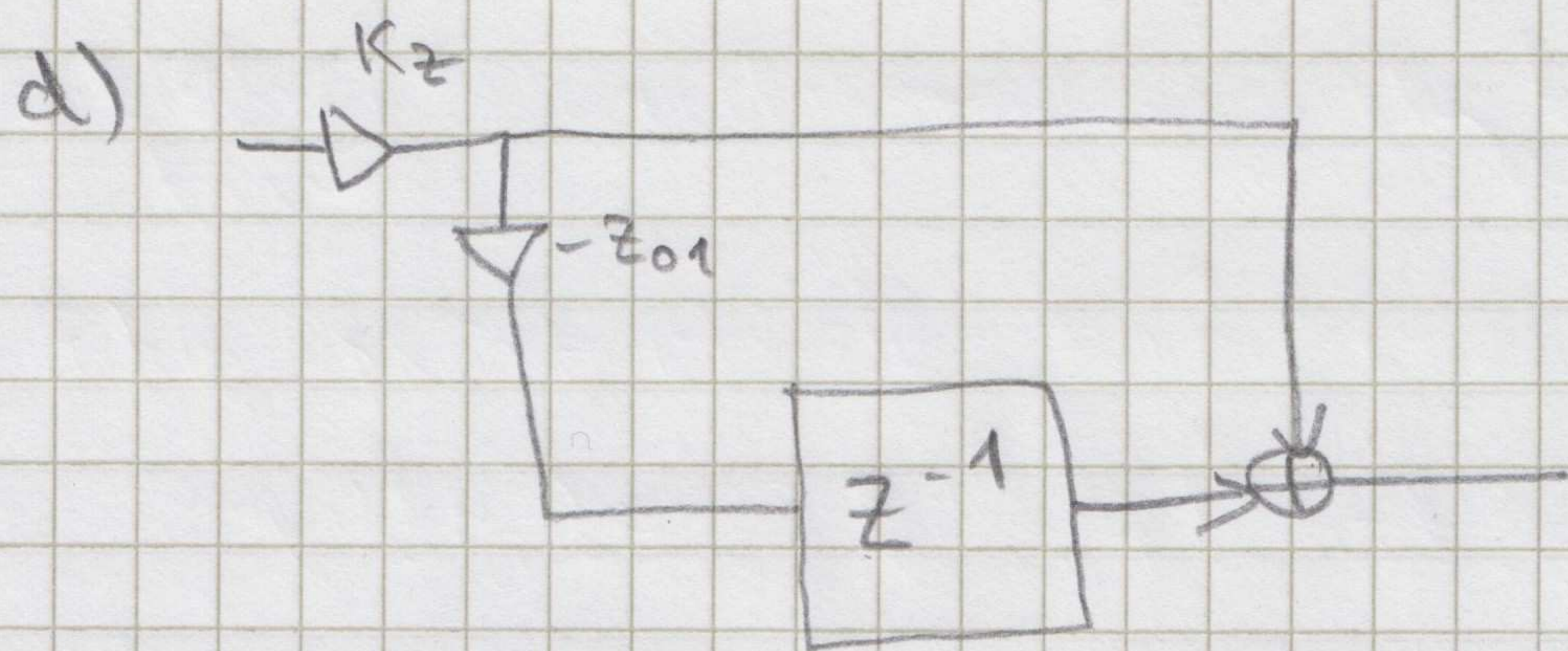
$$c) H(z) = K_2 \frac{z - z_{01}}{z - z_1}$$

$$H(z) = \frac{1}{1 - z_{01}} \cdot \frac{z - z_{01}}{z}$$
$$= \frac{1}{1 - z_{01}} \cdot (1 - z_{01} z^{-1})$$

Normierung: $|H(1)| = 1$

$$1 = K_2 \cdot \frac{1 - z_{01}}{1}$$

$$K_2 = \frac{1}{1 - z_{01}}$$

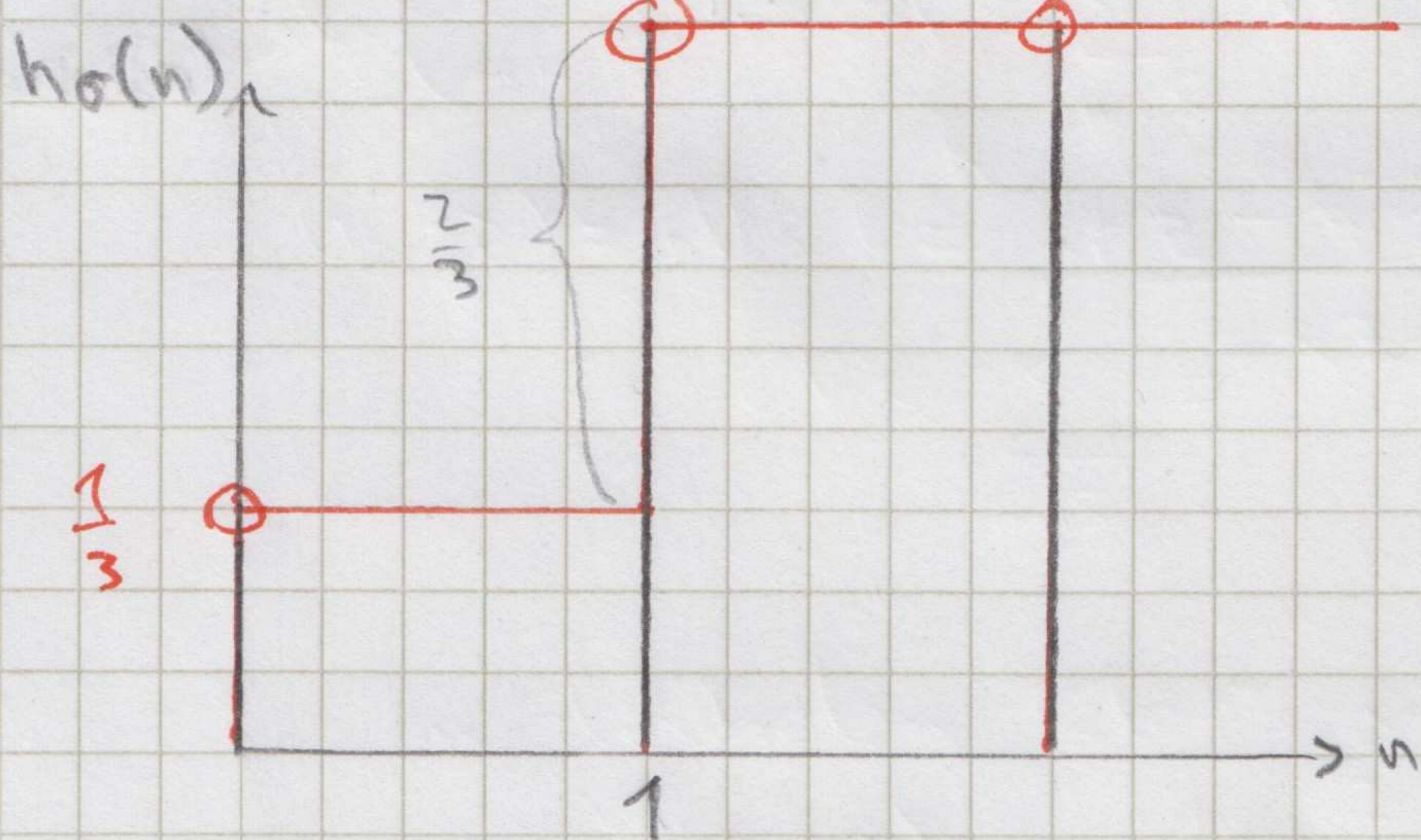
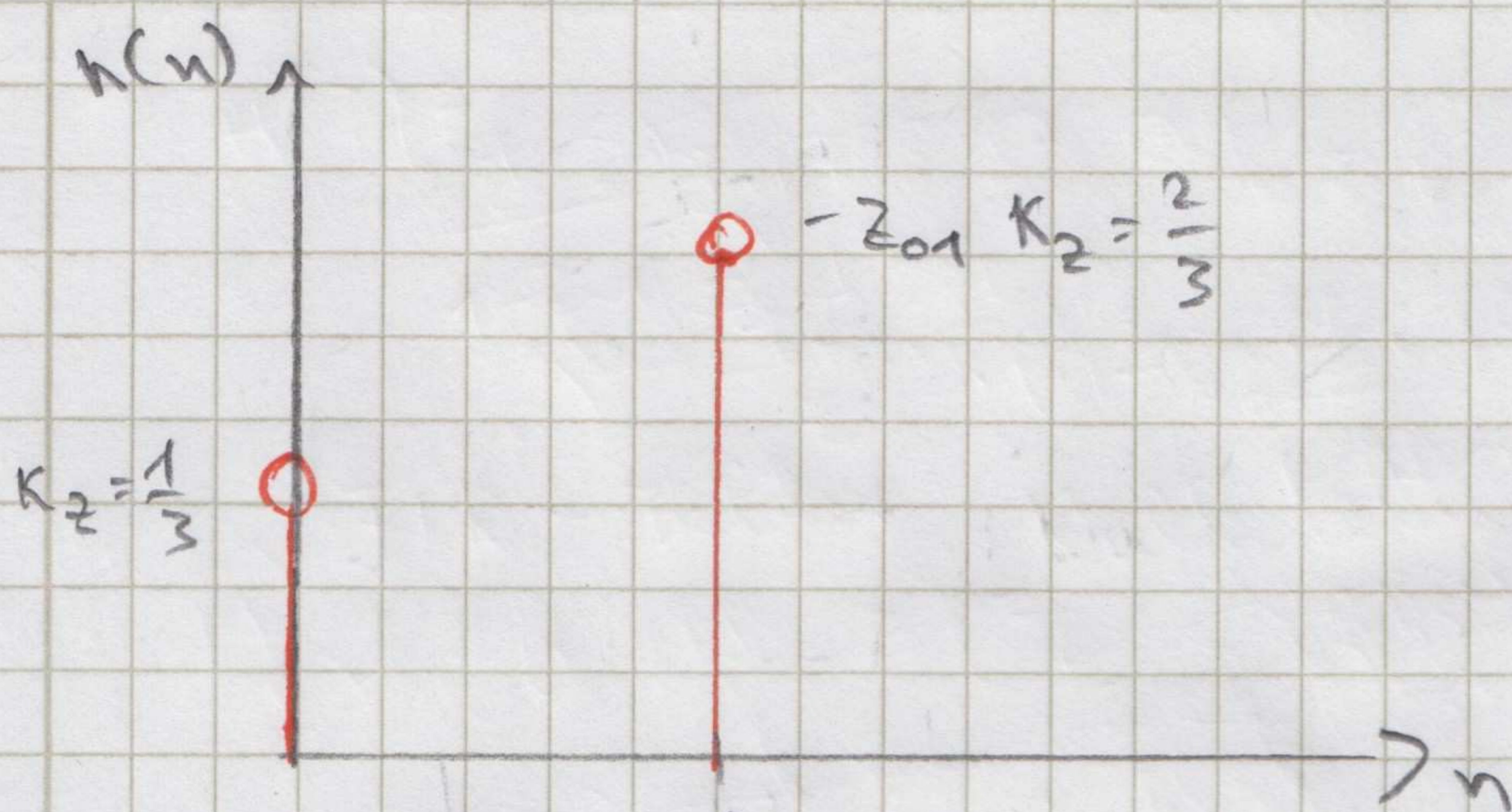


e) $H(z) = K_z (1 - z_0 z^{-1})$

$h(n) = K_z (\delta(n) - z_{01} \delta(n-1))$

discrete Stöße

$h_0(n) = K_z (\delta(n) - z_{01} \delta(n-1))$



f) $z_{01}' = \frac{1}{z_{01}} = -\frac{1}{2}$

$K_z = \frac{1}{1 - z_{01}} = \frac{1}{1 + \frac{1}{2}} = \frac{2}{3}$

