

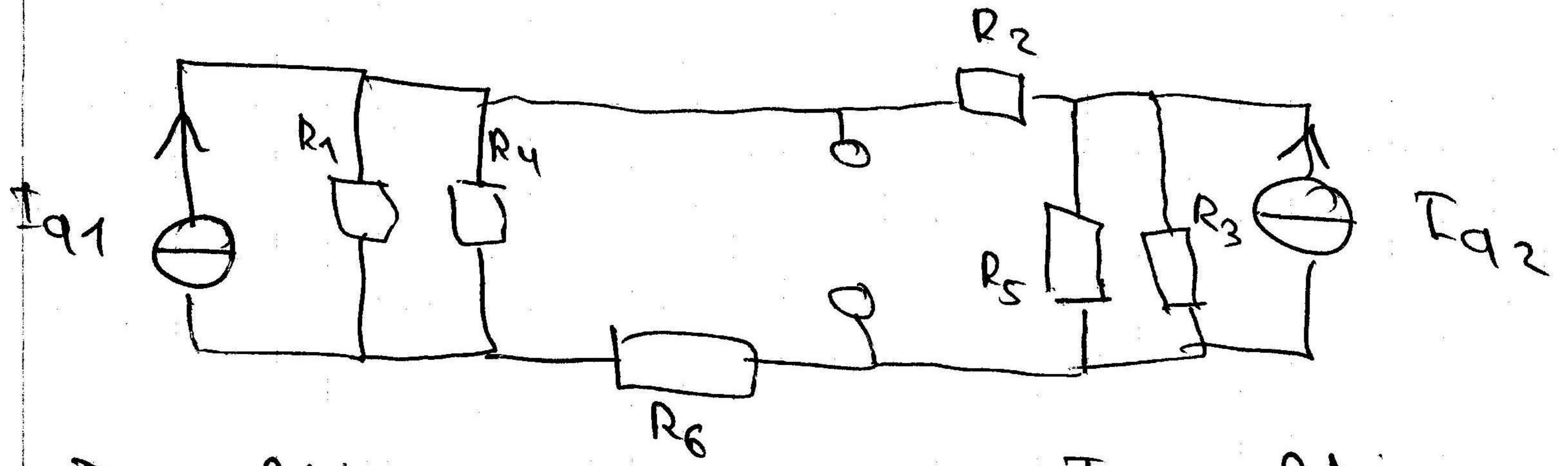
Widerstandstabelle

		Gemessen
R_5	820	780
R_1	1000	992
R_2	1000	992
R_3	2200	2175
R_4	220	220
R_6	330	315

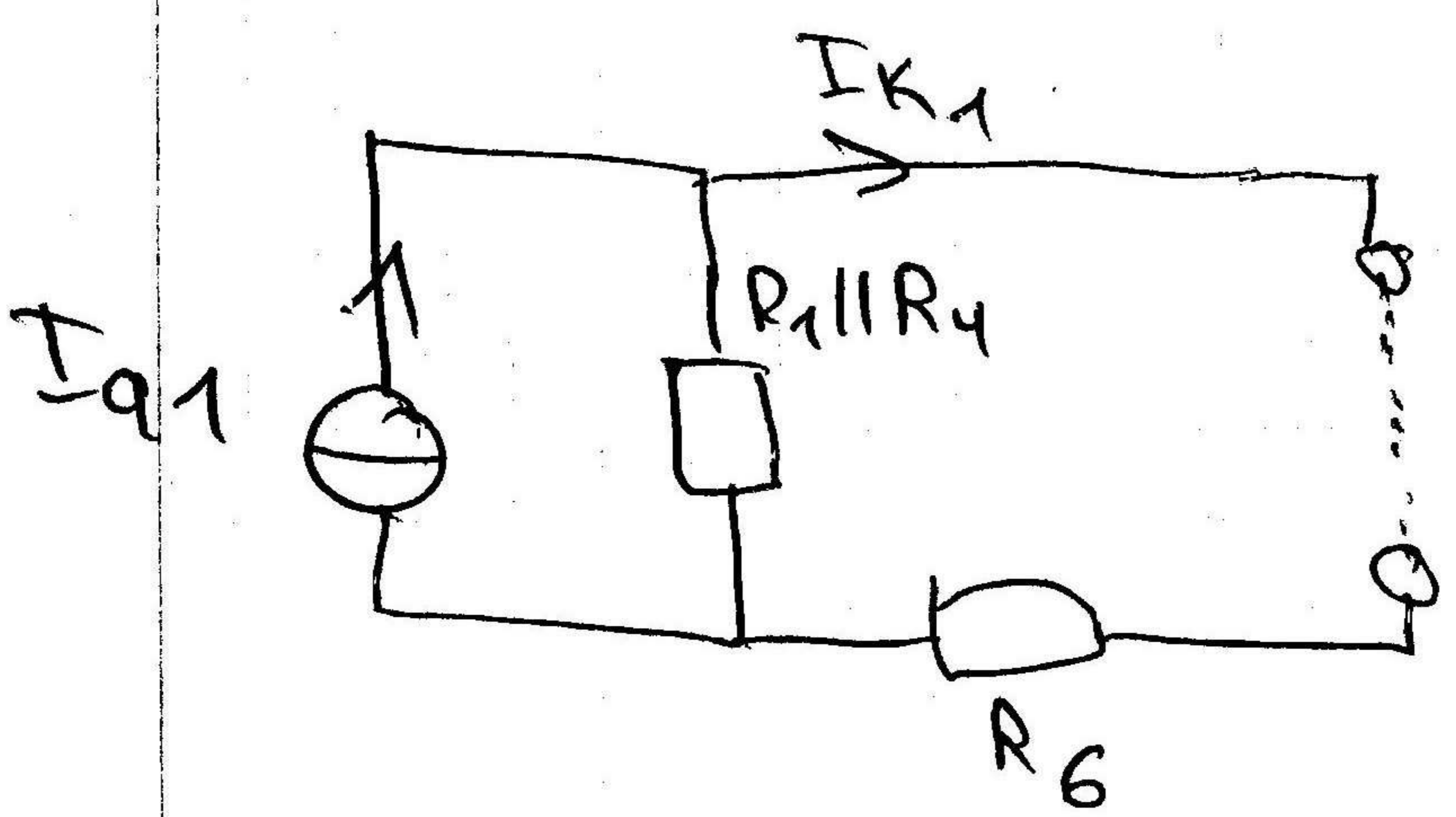
$$R_{ie} = ((R_1 \parallel R_4) \oplus R_6) \parallel ((R_3 \parallel R_5) \oplus R_2)$$

$$\Rightarrow R_{ie} \quad 1387 \Omega \quad | \quad 376 \Omega$$

I_{q2} ausrechnen. Quellwandler.



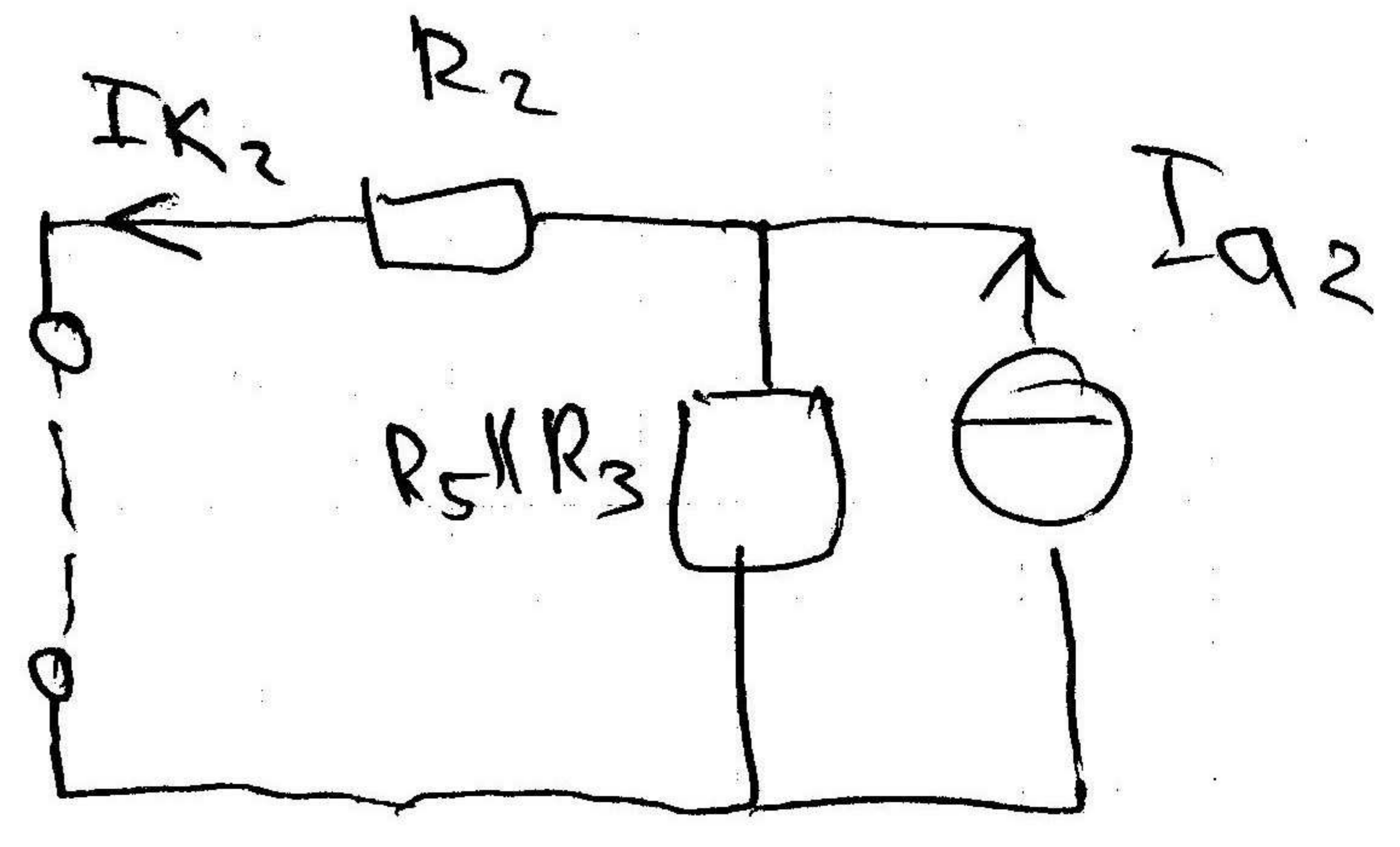
I_{q1} aktiv



$$\frac{I_{K1}}{I_{q1}} = \frac{(R_1 \parallel R_4)}{(R_1 \parallel R_4) \oplus R_6}$$

$$\rightarrow I_{K1} = 5,3 \text{ mA} \quad \checkmark$$

I_{q2} aktiv



$$\frac{I_{K2}}{I_{q2}} = \frac{(R_5 \parallel R_3)}{(R_5 \parallel R_3) \oplus R_2}$$

$$I_{K2} = 4,9 \text{ mA} \quad \checkmark$$

→ Gemessen: $I_{K1} = 5,4 \text{ mA}$

$I_{K2} = 5,0 \text{ mA}$

$I_{qe} = I_{K1} + I_{K2}$

→ $I_{qe} = 10,2 \text{ mA} \checkmark$

→ $I_{qe} = 10,4 \text{ mA}$ (Gemessen)

$U_{qe} = I_{qe} \cdot R_{ie}$

→ $U_{qe} = 3,95 \text{ V} \checkmark$

→ $U_{qe} = 3,91 \text{ V}$ (Gemessen)

2

$U(R_a)$ in V	0,83	1,38	1,59	1,76	1,91	2,04	2,27
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R_a in Ω	100	200	250	300	350	400	500
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2,44	2,58	2,70	2,80	2,89
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600	700	800	900	1000	✓
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$P(R_a)$ in mW	6,8	8,4	9,9	10,2	10,3	10,3
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R_a in Ω	100	200	250	300	350	400
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10,7	9,8	9,6	9	8,6	8,2
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500	600	700	800	900	1000	✓
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3 $I|_{R_a=100\Omega} = \frac{U_{Ra}}{R_a} = \frac{0,83 \text{ V}}{100 \Omega} = 8,3 \text{ mA} \checkmark$

4 $0,3 \cdot I_q = \frac{U_{Ra}}{R_a} = \frac{U_q}{R_i + R_a}$

↳ $R_a = 808,83 \Omega \checkmark$

$$\underline{S} \quad U|_{R_a=470\Omega} = \frac{470\Omega}{470\Omega + 376\Omega} = 2,2 \text{ V}$$

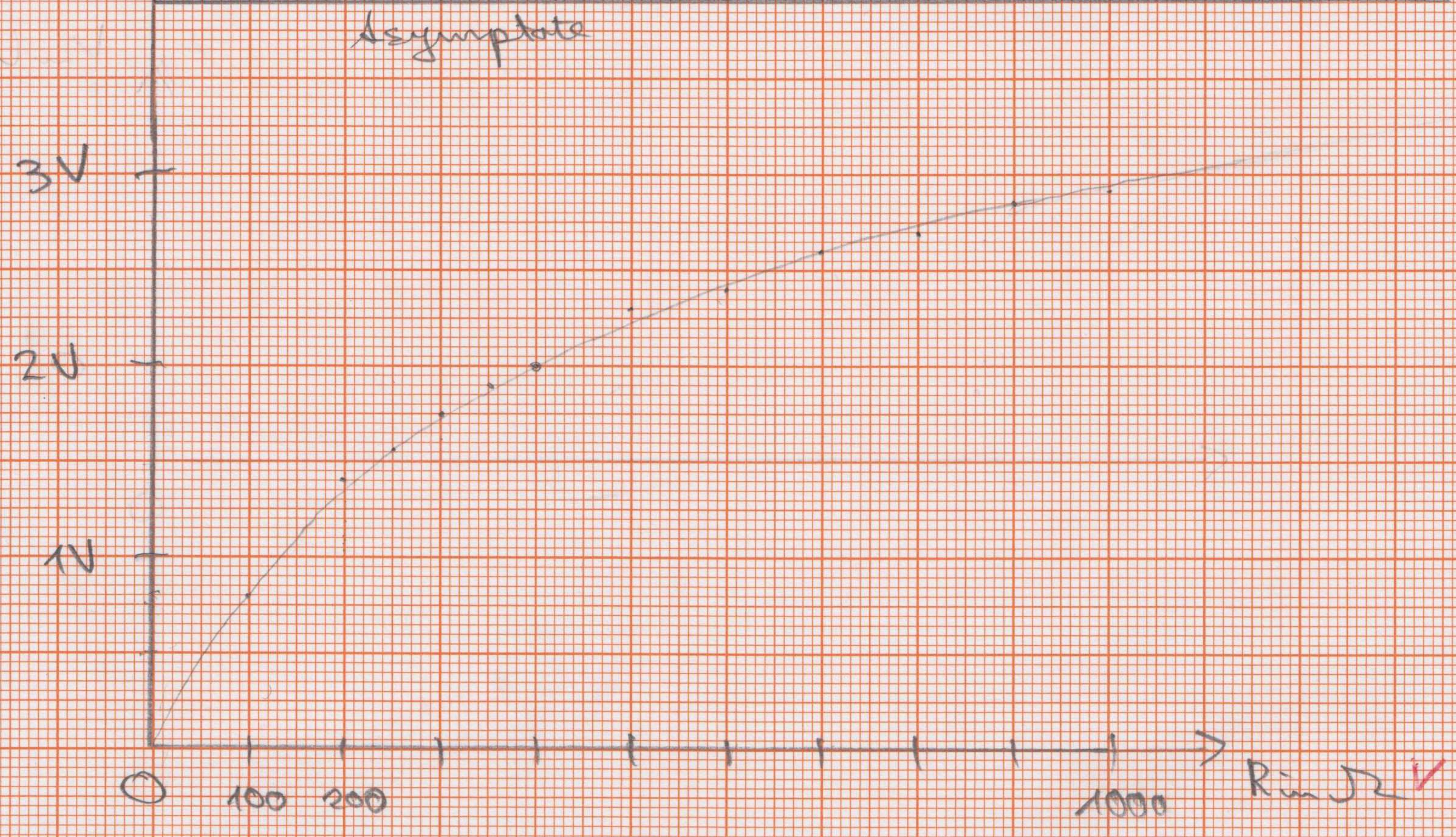
$$U' = \frac{U|_{R_a=470\Omega}}{2} \Rightarrow \beta' = \frac{\beta}{2}$$

$$\frac{(R_a=470\Omega \parallel R_x)}{(R_a=470\Omega \parallel R_x) \oplus R_i} = \frac{R_a=470\Omega}{R_a=470\Omega \oplus R_i} \cdot \frac{1}{2}$$

$$0,28 = \frac{R_a=470\Omega \parallel R_x}{(R_a=470\Omega \parallel R_x) \oplus R_i}$$

$$\hookrightarrow R_x = 207 \Omega \checkmark$$

$U_{in} [V]$

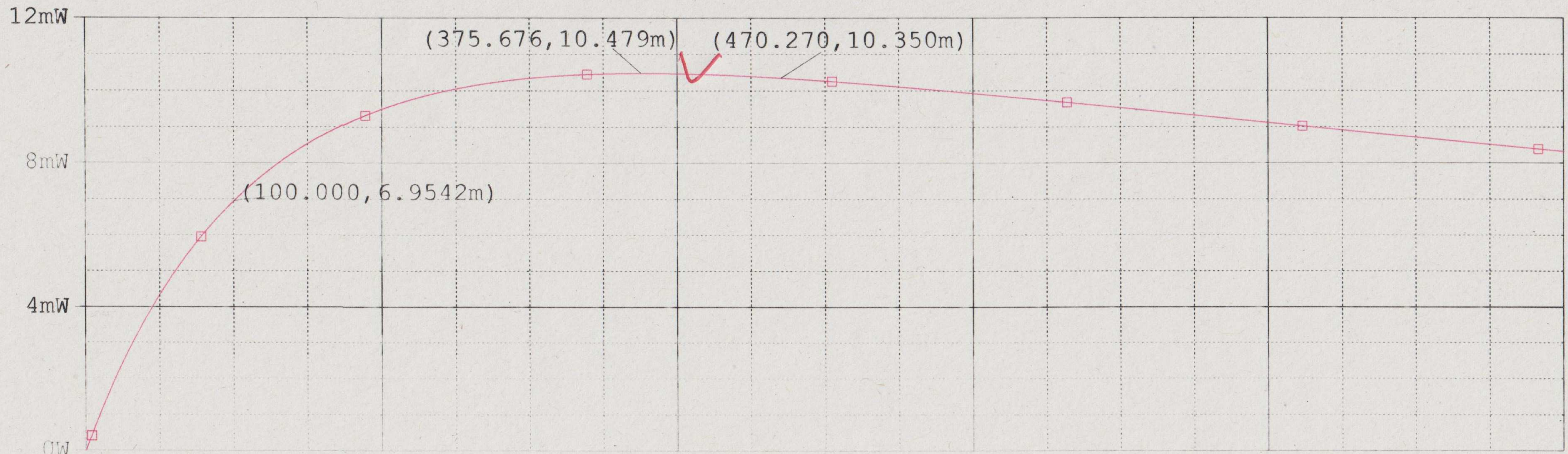


U für $R_a \rightarrow \infty$ ist: $3,91V$

$P_{in} [W]$



(A) gst1.dat (active)



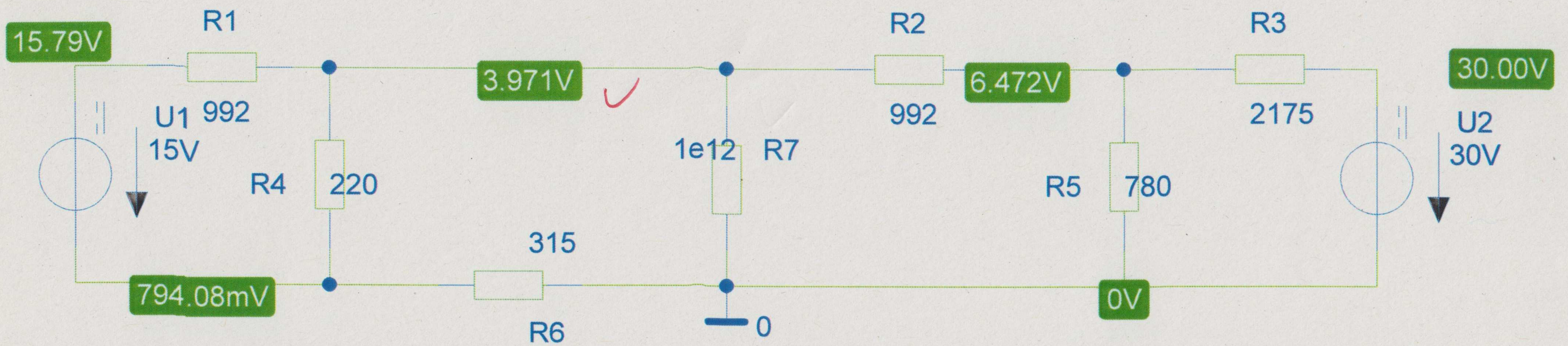
□ V(Ra:1) * I(Ra)



SEL>>

1 □ V(Ra:1) 2 ◇ I(Ra)

Rvar



Versuch 5
Tim Seyler
Tobias Meyer