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11 '***** <24C5> 240 PRINT SPACE$(25);:PRINT"*";CHR
12 '* WIDERSTANDSBERECHNUNGEN * <24DC> $(24);" H A U P T M E N U E ";CH
13 '* VON * <24E4> R$(24);"*" <3EFF>
20 '* JOERG BRAEUTIGAM * <24B0> 250 PRINT SPACE$(25);:PRINT STRING
22 '* FUER * <2429> $(25,"*") <19DE>
24 '* SCHNEIDER CPC-WELT * <2412> 260 FOR a=1 TO 3:PRINT:NEXT <12D3>
26 '* CPC 464/664/6128 JE* <2479> 270 PRINT CHR$(24);" (1) ";CHR$(24
28 '***** <24E7> );" Widerstaende in Parallelschalt
30 MEMORY &A000-1 <0B76> ungen" <425C>
40 GOSUB 5070 <09E0> 280 PRINT CHR$(24);" (2) ";CHR$(24
50 CLS:CLEAR:MODE 0:INK 1,6:FOR a= <1E89> );" Widerstaende in Reihenschaltun
1 TO 6:PRINT:NEXT <1217> gen" <400C>
60 PRINT STRING$(20,"*"):PRINT <1217> 290 PRINT CHR$(24);" (3) ";CHR$(24
70 PRINT"*";SPACE$(3);"Berechnunge <4590> );" Sonderfaelle der Widerstandsbe
n *":PRINT:PRINT"*";SPACE$(7);"v <2948> rechnung"
on";SPACE$(8);"*":PRINT:PRINT"*";S <2948> 300 PRINT CHR$(24);" (4) ";CHR$(24
PACE$(2);"Widerstaenden *":PRINT <628F> );" Einleitung"
<628F> 310 PRINT CHR$(24);" (5) ";CHR$(24
80 PRINT STRING$(20,"*") <1087> );" Programm beenden":PRINT:PRINT:
90 FOR a=1 TO 4000:NEXT a:MODE 2:I <1F41> GOSUB 4970:GOSUB 5010 <3DF1>
NK 1,24 <1F41> 320 a$=INKEY$:IF a$<"1"OR a$>"5"TH
100 CLS:CLEAR:PRINT STRING$(80,"*" <148F> EN 320 <2318>
) <148F> 330 ON VAL(a$)GOTO 340,1830,2480,1
110 PRINT:PRINT SPACE$(29);STRING$ <194C> 00,4910 <2212>
(23,"*") <194C> 340 CLS:CLEAR:GOSUB 5030 <0D72>
120 PRINT SPACE$(29)* E I N L E I <25F5> 350 FOR a=1 TO 2:PRINT:NEXT <1254>
T U N G *" <25F5> 360 PRINT SPACE$(15);"Berechnungen
130 PRINT SPACE$(29);STRING$(23,"* <1975> von Widerstaenden in Parallelscha
"):PRINT <1975> ltungen":PRINT STRING$(80,"*"):GOS
140 PRINT:PRINT" Mit diesem <9A0C> UB 5000 <55A4>
Programm koennen Sie jeden Widerst <9A0C> 370 PRINT CHR$(24);" (1) ";CHR$(24
and im Gleichstrom- <89C1> );" Gesamtwiderstand von n verschi
kreis berechnen.Das Programm arbe <89C1> edenen Widerstaenden" <5198>
itet mit Menuesteuerung." <89C1> 380 PRINT CHR$(24);" (2) ";CHR$(24
150 PRINT" Die Schaltbilder <435F> );" Schaltbild und Formel fuer Pun
und Formeln sind einzeln aufzurufe <435F> kt (1)" <435F>
n,da die Erstel- lung <4333> 390 PRINT CHR$(24);" (3) ";CHR$(24
eine gewisse Zeit in anspruch n im <4333> );" Gesamtwiderstand von n gleiche
mt." <89C1> n Widerstaenden" <4C33>
160 PRINT" Beim Aufrufen die <43C7> 400 PRINT CHR$(24);" (4) ";CHR$(24
ser Programmpunkte bitte ich daher <43C7> );" Schaltbild und Formel fuer Pun
um ein wenig Gedul <43C7> kt (3)" <43C7>
d. Ausserdem steht eine kleine Har <4307> 410 PRINT CHR$(24);" (5) ";CHR$(24
dcopyroutine fuer die Schalt- <4307> );" Gesamtwiderstand von 2 Widerst
170 PRINT" bilder und Formel <43D9> aenden" <4307>
n zur Verfuegung. Nach dem Erstell <43D9> 420 PRINT CHR$(24);" (6) ";CHR$(24
en der Schaltbilder warte <43D9> );" Schaltbild und Formel fuer Pun
t der Computer auf die Taste (W) o <43D9> kt (5)" <43D9>
der (H). <43D9> 430 PRINT CHR$(24);" (7) ";CHR$(24
180 PRINT" (Bedeutung:W=weit <45E84> );" Wie gross ist ein Einzelwiders
er im Programm ;H=Hardcopyroutine <45E84> tand in einer Parallelschaltung?"
):PRINT <459C> <45E84>
190 PRINT:PRINT:PRINT:PRINT SPACE$ <4460> 440 PRINT CHR$(24);" (8) ";CHR$(24
(24);CHR$(24);" Weiter mit belie <4460> );" Rueckkehr zum Hauptmenue":PRIN
iger Taste ";CHR$(24):PRINT <4460> T:PRINT:GOSUB 4970:GOSUB 5010 <4575>
200 PRINT STRING$(80,"*") <109C> 450 b$=INKEY$:IF b$<"1"OR b$>"8"TH
210 CALL &BB06 <09F0> EN 450 <2374>
220 CLS:CLEAR:MODE 2:INK 1,24 <11A8> 460 ON VAL(b$)GOTO 470,600,900,102
230 PRINT:PRINT:PRINT SPACE$(25);: <2E60> 0,1320,1440,1650,1820 <2E60>
PRINT STRING$(25,"*") <1D9D> 470 CLS:CLEAR <0877>

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480 PRINT:FOR a=1 TO 3:PRINT:NEXT:
PRINT SPACE$(6);"Berechnung des Ge
samtwiderstandes von n verschieden
en Widerstaenden":PRINT STRING$(80
,"-"):GOSUB 4990 (72E4)
490 A=1E-10 (10CF)
500 PRINT:PRINT"Wenn Sie fuer den
Widerstand 0 eingeben,so wird der
Gesamtwiderstand ausge- rechnet
!":PRINT:PRINT CHR$(24);" Formel
:";CHR$(24);" Rges=1/(1/R1+1/R2+1
/R3+....+1/Rn)" (A59A)
510 PRINT:INPUT"Wie gross soll der
Widerstand sein ";A:GOTO 530 (371A)
520 PRINT:INPUT"Wie gross soll der
naechste Widerstand sein ";A (3B5F)
530 IF A<0 THEN GOSUB 4980:GOTO 52
0 (164F)
540 IF A=0 THEN 560 (1041)
550 g=1/A:R=R+G:B=1/R:GOTO 520 (3081)
560 PRINT CHR$(7):PRINT"Der Gesamt
widerstand betraegt:";B;" Ohm.":GO
SUB 5020 (3F87)
570 a$=INKEY$:IF a$<>"N"AND a$<>"J
"AND a$<>"n"AND a$<>"j"THEN 570 (3593)
580 IF a$="j"OR a$="J"THEN 470 (1B9F)
590 IF a$="n"OR a$="N"THEN 340 (1BAD)
600 REM Schaltbild fuer n-verschie
dene Widerstaende (32B0)
610 MODE 2:CLS:LOCATE 18,1:PRINT"S
chaltbild fuer n-verschiedene Wide
rstaende":LOCATE 17,2:PRINT STRING
$(45,"-") (5036)
620 PLOT 51,320:DRAW 51,320:DRAW 3
90,320:PLOT 410,320:DRAW 410,320:D
RAW 430,320:PLOT 450,320:DRAW 450,
320:DRAW 470,320:PLOT 490,320:DRAW
490,320:DRAW 510,320 (6E9F)
630 PLOT 51,140:DRAW 51,140:DRAW 3
90,140:PLOT 410,140:DRAW 410,140:D
RAW 430,140:PLOT 450,140:DRAW 450,
140:DRAW 470,140:PLOT 490,140:DRAW
490,140:DRAW 510,140 (62AE)
640 PLOT 100,320:DRAW 100,320:DRAW
100,260:PLOT 200,320:DRAW 200,320
:DRAW 200,260:PLOT 300,320:DRAW 30
0,320:DRAW 300,260:PLOT 510,320:DR
AW 510,320:DRAW 510,260 (6AB0)
650 PLOT 101,320:DRAW 101,320:DRAW
101,260:PLOT 201,320:DRAW 201,320
:DRAW 201,260:PLOT 301,320:DRAW 30
1,320:DRAW 301,260:PLOT 511,320:DR
AW 511,320:DRAW 511,260 (6A74)
660 PLOT 80,260:DRAW 80,260:DRAW 1
20,260:PLOT 180,260:DRAW 180,260:D
RAW 220,260:PLOT 280,260:DRAW 320,
260:PLOT 490,260:DRAW 490,260:DRAW
530,260 (6186)
670 PLOT 80,260:DRAW 80,260:DRAW 8
0,200:PLOT 120,260:DRAW 120,260:DR
AW 120,200:PLOT 81,260:DRAW 81,260
:DRAW 81,200:PLOT 121,260:DRAW 121
,260:DRAW 121,200 (603F)
680 PLOT 180,260:DRAW 180,260:DRAW
180,200:PLOT 220,260:DRAW 220,260
:DRAW 220,200:PLOT 181,260:DRAW 18
1,260:DRAW 181,200:PLOT 221,260:DR
AW 221,260:DRAW 221,200 (600A)
690 PLOT 280,260:DRAW 280,260:DRAW
280,200:PLOT 320,260:DRAW 320,260
:DRAW 320,200:PLOT 281,260:DRAW 28
1,260:DRAW 281,200:PLOT 321,260:DR
AW 321,260:DRAW 321,200 (6CDA)
700 PLOT 490,260:DRAW 490,260:DRAW
490,200:PLOT 530,260:DRAW 530,260
:DRAW 530,200:PLOT 491,260:DRAW 49
1,260:DRAW 491,200:PLOT 531,260:DR
AW 531,260:DRAW 531,200 (6C7D)
710 PLOT 80,200:DRAW 80,200:DRAW 1
20,200:PLOT 180,200:DRAW 180,200:D
RAW 220,200:PLOT 280,200:DRAW 280,
200:DRAW 320,200:PLOT 490,200:DRAW
490,200:DRAW 530,200 (5E07)
720 PLOT 100,200:DRAW 100,200:DRAW
100,140:PLOT 101,200:DRAW 101,200
:DRAW 101,140 (2E57)
730 PLOT 200,200:DRAW 200,200:DRAW
200,140:PLOT 201,200:DRAW 201,200
:DRAW 201,140 (2E9A)
740 PLOT 300,200:DRAW 300,200:DRAW
300,140:PLOT 301,200:DRAW 301,200
:DRAW 301,140 (344C)
750 PLOT 510,200:DRAW 510,200:DRAW
510,140:PLOT 511,200:DRAW 511,200
:DRAW 511,140 (3491)
760 DEG:FOR a=1 TO 360:MOVE 100,32
0:DRAW 100+5*COS(a),320+5*SIN(a):N
EXT (3AB7)
770 DEG:FOR a=1 TO 360:MOVE 200,32
0:DRAW 200+5*COS(a),320+5*SIN(a):N
EXT (3AAA)
780 DEG:FOR a=1 TO 360:MOVE 300,32
0:DRAW 300+5*COS(a),320+5*SIN(a):N
EXT (3C03)
790 DEG:FOR a=1 TO 360:MOVE 100,14
0:DRAW 100+5*COS(a),140+5*SIN(a):N
EXT (3823)
800 DEG:FOR a=1 TO 360:MOVE 200,14
0:DRAW 200+5*COS(a),140+5*SIN(a):N
EXT (3854)
810 DEG:FOR a=1 TO 360:MOVE 300,14
0:DRAW 300+5*COS(a),140+5*SIN(a):N
EXT (3A0E)
820 ORIGIN 40,320:DEG:MOVE 0,10:FO
R a=1 TO 360:PLOT 10*COS(a),10*SIN
(a):NEXT (3B9D)
830 ORIGIN 40,140:DEG:MOVE 0,10:FO
R a=1 TO 360:PLOT 10*COS(a),10*SIN
(a):NEXT (3A4E)
840 LOCATE 8,11:PRINT"R1":LOCATE 2

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0,11:PRINT"R2":LOCATE 33,11:PRINT"
R3":LOCATE 59,11:PRINT"Rn"          <3777>
850 LOCATE 1,20:PRINT CHR$(24);" F
ormel: ";CHR$(24);" Rges=1/(1/R1+1
/R2+1/R3+....+1/Rn)"                <4B3E>
860 a$=INKEY$:IF a$=""THEN 860       <193D>
870 IF a$="W"OR a$="w"THEN 340       <1B7F>
880 IF a$="H"OR a$="h"THEN CALL &A
000:GOTO 340                          <214E>
890 IF a$(">"W"AND a$(">"w"AND a$(">"
H"AND a$(">"h"THEN 860              <2DD6>
900 CLS:CLEAR                          <08D6>
910 FOR a=1 TO 3:PRINT:NEXT:PRINT
SPACE$(8);"Berechnung des Gesamtwi
derstandes von n gleichen Widersta
enden":PRINT STRING$(80,"-"):GOSUB
4990                                    <6BC5>
920 PRINT:PRINT CHR$(24);" Formel:
";CHR$(24);" Rges=R/n"               <2D23>
930 PRINT:INPUT"Wie gross ist der
Wert der Widerstaende ";r           <379B>
940 IF r<1 THEN GOSUB 4980:GOTO 93
0                                       <16BF>
950 PRINT:INPUT"Wieviele Widerstae
nde sind vorhanden ";n               <34B8>
960 IF n<1 THEN GOSUB 4980:GOTO 95
0                                       <1689>
970 R=r/n                              <13F5>
980 PRINT CHR$(7):PRINT"Der Gesamt
widerstand betraegt: ";R;" Ohm.":GO
SUB 5020                              <3F87>
990 a$=INKEY$:IF a$(">"N"AND a$(">"J
"AND a$(">"j"AND a$(">"n"THEN 990   <350B>
1000 IF a$="J"OR a$="j"THEN 900      <1B56>
1010 IF a$="N"OR a$="n"THEN 340     <1BE6>
1020 REM Schaltbild fuer n-gleiche
Widerstaende                         <2D43>
1030 MODE 2:CLS:LOCATE 21,1:PRINT"
Schaltbild fuer n-gleiche Widersta
ende":LOCATE 20,2:PRINT STRING$(40
,"-")                                  <4B76>
1040 PLOT 51,320:DRAW 51,320:DRAW
390,320:PLOT 410,320:DRAW 410,320:
DRAW 430,320:PLOT 450,320:DRAW 450
,320:DRAW 470,320:PLOT 490,320:DRA
W 490,320:DRAW 510,320                <6EE8>
1050 PLOT 51,140:DRAW 51,140:DRAW
390,140:PLOT 410,140:DRAW 410,140:
DRAW 430,140:PLOT 450,140:DRAW 450
,140:DRAW 470,140:PLOT 490,140:DRA
W 490,140:DRAW 510,140               <62F9>
1060 PLOT 100,320:DRAW 100,320:DRA
W 100,260:PLOT 200,320:DRAW 200,32
0:DRAW 200,260:PLOT 300,320:DRAW 3
00,320:DRAW 300,260:PLOT 510,320:D
RAW 510,320:DRAW 510,260             <6AFB>
1070 PLOT 101,320:DRAW 101,320:DRA
W 101,260:PLOT 201,320:DRAW 201,32
0:DRAW 201,260:PLOT 301,320:DRAW 3
01,320:DRAW 301,260:PLOT 511,320:D

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RAW 511,320:DRAW 511,260             <6ABF>
1080 PLOT 80,260:DRAW 80,260:DRAW
120,260:PLOT 180,260:DRAW 180,260:
DRAW 220,260:PLOT 280,260:DRAW 320
,260:PLOT 490,260:DRAW 490,260:DRA
W 530,260                             <61D1>
1090 PLOT 80,260:DRAW 80,260:DRAW
80,200:PLOT 120,260:DRAW 120,260:D
RAW 120,200:PLOT 81,260:DRAW 81,26
0:DRAW 81,200:PLOT 121,260:DRAW 12
1,260:DRAW 121,200                  <6088>
1100 PLOT 180,260:DRAW 180,260:DRA
W 180,200:PLOT 220,260:DRAW 220,26
0:DRAW 220,200:PLOT 181,260:DRAW 1
81,260:DRAW 181,200:PLOT 221,260:D
RAW 221,260:DRAW 221,200           <6055>
1110 PLOT 280,260:DRAW 280,260:DRA
W 280,200:PLOT 320,260:DRAW 320,26
0:DRAW 320,200:PLOT 281,260:DRAW 2
81,260:DRAW 281,200:PLOT 321,260:D
RAW 321,260:DRAW 321,200           <6C24>
1120 PLOT 490,260:DRAW 490,260:DRA
W 490,200:PLOT 530,260:DRAW 530,26
0:DRAW 530,200:PLOT 491,260:DRAW 4
91,260:DRAW 491,200:PLOT 531,260:D
RAW 531,260:DRAW 531,200           <6CC6>
1130 PLOT 80,200:DRAW 80,200:DRAW
120,200:PLOT 180,200:DRAW 180,200:
DRAW 220,200:PLOT 280,200:DRAW 280
,200:DRAW 320,200:PLOT 490,200:DRA
W 490,200:DRAW 530,200             <5E50>
1140 PLOT 100,200:DRAW 100,200:DRA
W 100,140:PLOT 101,200:DRAW 101,20
0:DRAW 101,140                       <2EA0>
1150 PLOT 200,200:DRAW 200,200:DRA
W 200,140:PLOT 201,200:DRAW 201,20
0:DRAW 201,140                       <2EE5>
1160 PLOT 300,200:DRAW 300,200:DRA
W 300,140:PLOT 301,200:DRAW 301,20
0:DRAW 301,140                       <3497>
1170 PLOT 510,200:DRAW 510,200:DRA
W 510,140:PLOT 511,200:DRAW 511,20
0:DRAW 511,140                       <34DA>
1180 DEG:FOR a=1 TO 360:MOVE 100,3
20:DRAW 100+5*COS(a),320+5*SIN(a):
NEXT                                  <3A00>
1190 DEG:FOR a=1 TO 360:MOVE 200,3
20:DRAW 200+5*COS(a),320+5*SIN(a):
NEXT                                  <3AF2>
1200 DEG:FOR a=1 TO 360:MOVE 300,3
20:DRAW 300+5*COS(a),320+5*SIN(a):
NEXT                                  <3C4D>
1210 DEG:FOR a=1 TO 360:MOVE 100,1
40:DRAW 100+5*COS(a),140+5*SIN(a):
NEXT                                  <386D>
1220 DEG:FOR a=1 TO 360:MOVE 200,1
40:DRAW 200+5*COS(a),140+5*SIN(a):
NEXT                                  <389C>
1230 DEG:FOR a=1 TO 360:MOVE 300,1
40:DRAW 300+5*COS(a),140+5*SIN(a):

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NEXT                                     <3A56>
1240 ORIGIN 40,320:DEG:MOVE 0,10:F
OR a=1 TO 360:PLOT 10*COS(a),10*SI
N(a):NEXT                               <3BE7>
1250 ORIGIN 40,140:DEG:MOVE 0,10:F
OR a=1 TO 360:PLOT 10*COS(a),10*SI
N(a):NEXT                               <3A96>
1260 LOCATE 8,11:PRINT"R1":LOCATE
20,11:PRINT"R2":LOCATE 33,11:PRINT
"R3":LOCATE 59,11:PRINT"Rn"          <37C1>
1270 LOCATE 1,20:PRINT CHR$(24);"
Formel: ";CHR$(24);" Rges=R/n"      <31F8>
1280 a$=INKEY$:IF a$=""THEN 1280    <19AD>
1290 IF a$="W"OR a$="w"THEN 340     <1BCA>
1300 IF a$="H"OR a$="h"THEN CALL &
A000:GOTO 340                         <2197>
1310 IF a$("<"W"AND a$("<"w"AND a$("<
"H"AND a$("<"h"THEN 1280          <2D49>
1320 CLS:CLEAR                        <0820>
1330 FOR a=1 TO 3:PRINT:NEXT:PRINT
SPACE$(12);"Berechnung des Gesamt
widerstandes von 2 Widerstaenden":
PRINT STRING$(80,"-"):GOSUB 4990    <63CA>
1340 PRINT:PRINT CHR$(24);" Formel
: ";CHR$(24);" Rges=(R1*R2)/(R1+R2
)"                                     <399F>
1350 PRINT:INPUT"Wie gross soll de
r Widerstand R1 sein ";R1          <366B>
1360 IF R1<0 THEN GOSUB 4980:GOTO
1350                                  <17C6>
1370 PRINT:INPUT"Wie gross soll de
r Widerstand R2 sein ";R2          <3614>
1380 IF R2<0 THEN GOSUB 4980:GOTO
1370                                  <17CF>
1390 R=((R1*R2)/(R1+R2))             <2777>
1400 PRINT CHR$(7):PRINT"Der Gesam
twiderstand betraegt: ";R;" Ohm.":G
OSUB 5020                             <3FD2>
1410 a$=INKEY$:IF a$("<"J"AND a$("<"
N"AND a$("<"n"AND a$("<"j"THEN 1410 <352B>
1420 IF a$="J"OR a$="j"THEN 900     <1B9F>
1430 IF a$="N"OR a$="n"THEN 340     <1B30>
1440 REM Schaltbild fuer 2 Widerst
aende                                  <2526>
1450 MODE 2:CLS:LOCATE 25,1:PRINT"
Schaltbild fuer 2 Widerstaende":LO
CATE 24,2:PRINT STRING$(32,"-")    <43B4>
1460 PLOT 51,320:DRAW 51,320:DRAW
300,320:PLOT 51,140:DRAW 51,140:DR
AW 300,140                             <3386>
1470 PLOT 150,320:DRAW 150,320:DRA
W 150,260:PLOT 300,320:DRAW 300,32
0:DRAW 300,260                         <3700>
1480 PLOT 151,320:DRAW 151,320:DRA
W 151,260:PLOT 301,320:DRAW 301,32
0:DRAW 301,260                         <378A>
1490 PLOT 130,260:DRAW 130,260:DRA
W 170,260:PLOT 280,260:DRAW 280,26
0::DRAW 320,260                       <3858>
1500 PLOT 130,260:DRAW 130,260:DRA
W 130,200:PLOT 170,260:DRAW 170,26
0:DRAW 170,200:PLOT 131,260:DRAW 1
31,260:DRAW 131,200:PLOT 171,260:D
RAW 171,260:DRAW 171,200             <6048>
1510 PLOT 280,260:DRAW 280,260:DRA
W 280,200:PLOT 320,260:DRAW 320,26
0:DRAW 320,200:PLOT 281,260:DRAW 2
81,260:DRAW 281,200:PLOT 321,260:D
RAW 321,260:DRAW 321,200             <6C46>
1520 PLOT 130,200:DRAW 130,200:DRA
W 170,200:PLOT 280,200:DRAW 280,20
0:DRAW 320,200                       <3157>
1530 PLOT 150,200:DRAW 150,200:DRA
W 150,140:PLOT 151,200:DRAW 151,20
0:DRAW 151,140                         <2E39>
1540 PLOT 300,200:DRAW 300,200:DRA
W 300,140:PLOT 301,200:DRAW 301,20
0:DRAW 301,140                         <3490>
1550 DEG:FOR a=1 TO 360:MOVE 150,3
20:DRAW 150+5*COS(a),320+5*SIN(a):
NEXT                                    <3AD5>
1560 DEG:FOR a=1 TO 360:MOVE 150,1
40:DRAW 150+5*COS(a),140+5*SIN(a):
NEXT                                    <386A>
1570 ORIGIN 40,320:DEG:MOVE 0,10:F
OR a=1 TO 360:PLOT 10*COS(a),10*SI
N(a):NEXT                               <3B7C>
1580 ORIGIN 40,140:DEG:MOVE 0,10:F
OR a=1 TO 360:PLOT 10*COS(a),10*SI
N(a):NEXT                               <3A2D>
1590 LOCATE 14,11:PRINT"R1":LOCAT
E 33,11:PRINT"R2"                   <1F36>
1600 LOCATE 1,20:PRINT CHR$(24);"
Formel: ";CHR$(24);" Rges=(R1*R2)/
(R1+R2)"                               <3D30>
1610 a$=INKEY$:IF a$=""THEN 1610   <1999>
1620 IF a$="W"OR a$="w"THEN 340     <1B5E>
1630 IF a$="H"OR a$="h"THEN CALL &
A000:GOTO 340                         <212D>
1640 IF a$("<"W"AND a$("<"w"AND a$("<
"H"AND a$("<"h"THEN 1610          <2D31>
1650 CLS:CLEAR                        <08B5>
1660 FOR a=1 TO 3:PRINT:NEXT:PRINT
SPACE$(10);"Berechnung eines Einz
elwiderstandes in der Parallelscha
ltung":PRINT STRING$(80,"-"):GOSUB
4990                                    <6A54>
1670 PRINT:INPUT"Wie gross soll de
r Gesamtwiderstand sein ";g        <380D>
1680 IF g<=0 THEN GOSUB 4980:GOTO
1670                                    <1648>
1690 PRINT:PRINT"Wenn Sie fuer den
Widerstand 0 eingeben,so wird der
Einzelwiderstand ausge- rechn
et !"                                   <637D>
1700 a=0:b=0                           <12C4>
1710 PRINT:INPUT"Wie gross soll de
r andere Einzelwiderstand sein ";r
:GOTO 1730                             <44DD>
1720 PRINT:INPUT"Wie gross soll de

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r naechste Einzelwiderstand sein "
;r                                     (4105)
1730 IF r=0 THEN GOTO 1770           (1160)
1740 IF r<0 THEN 1720                (1023)
1750 IF r<g THEN PRINT:PRINT"Der E
inzelwiderstand einer Parallelscha
ltung kann nie kleiner als der Ges
amt- widerstand der Parallelscha
ltung sein !":GOTO 1720              (912D)
1760 a=1/R:b=b+a:GOTO 1720           (249B)
1770 c=1/g:d=c-b:e=1/d              (2B4E)
1780 IF e<=0 THEN PRINT CHR$(7):PR
INT"Die eingebenden Widerstaende w
aren falsch!":GOSUB 5020:ELSE PRIN
T CHR$(7):PRINT"Der Einzelwidersta
nd betraegt:";e;" Ohm.":GOSUB 5020
                                     (833A)
1790 a$=INKEY$:IF a$<>"N"AND a$<>"
J"AND a$<>"n"AND a$<>"j"THEN 1790 (354D)
1800 IF a$="J"OR a$="j"THEN 1650    (1B16)
1810 IF a$="N"OR a$="n"THEN 340     (1B29)
1820 GOTO 220                        (0914)
1830 CLS:CLEAR:GOSUB 5030            (0D1C)
1840 FOR a=1 TO 3:PRINT:NEXT        (1232)
1850 PRINT SPACE$(12);"Berechnunge
n von Widerstaenden in der Reihens
chaltung":PRINT STRING$(80,"*"):GO
SUB 5000                              (551C)
1860 PRINT CHR$(24);" (1) ";CHR$(2
4);" Gesamt- widerstand von n versch
iedenen Widerstaenden"              (5142)
1870 PRINT CHR$(24);" (2) ";CHR$(2
4);" Schaltbild und Formel fuer Pu
nkt (1)"                              (4309)
1880 PRINT CHR$(24);" (3) ";CHR$(2
4);" Wie gross ist ein Einzelwider
stand in einer Reihenschaltung"      (5A0E)
1890 PRINT CHR$(24);" (4) ";CHR$(2
4);" Rueckkehr zum Hauptmenue":PRI
NT:PRINT:GOSUB 4970:GOSUB 5010      (4599)
1900 c$=INKEY$:IF c$<"1"OR c$>"4"
HEN 1900                               (234B)
1910 ON VAL(c$)GOTO 1920,2060,2300
,2470                                  (1E62)
1920 CLS:CLEAR                       (08D2)
1930 FOR a=1 TO 3:PRINT:NEXT:PRINT
SPACE$(7);"Berechnung des Gesamt-
widerstandes von n verschiedenen Wi
derstaenden":PRINT STRING$(80,"-")
:GOSUB 4990                            (70ED)
1940 PRINT:PRINT"Wenn Sie fuer den
Widerstand 0 eingeben,so wird der
Gesamt- widerstand berechnet !":PRI
NT:PRINT CHR$(24);" Formel: ";CHR$
(24)" Rges=R1+R2+R3+....+Rn":PRINT
                                     (91F9)
1950 a=0                               (0B88)
1960 PRINT:INPUT"Wie gross soll de
r Widerstand sein ";r:GOTO 1980     (370D)
1970 PRINT:INPUT"Wie gross soll de

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r naechste Widerstand sein ";r      (3B7E)
1980 IF r<0 THEN GOSUB 4980:GOTO 1
970                                   (1686)
1990 a=a+r                             (13A9)
2000 IF r=0 THEN 2020                 (1090)
2010 GOTO 1970                         (095A)
2020 PRINT CHR$(7):PRINT"Der Gesam
twiderstand betraegt:";a;" Ohm":GO
SUB 5020                               (3E90)
2030 d$=INKEY$:IF d$<>"N"AND d$<>"
J"AND d$<>"n"AND d$<>"j"THEN 2030 (3566)
2040 IF d$="J"OR d$="j"THEN 1920     (1B05)
2050 IF d$="N"OR d$="n"THEN 1830     (1B56)
2060 REM Schaltbild fuer n-verschi
edene Widerstaende                  (321E)
2070 MODE 2:CLS:LOCATE 18,1:PRINT"
Schaltbild fuer n-verschiedene Wid
erstaende":LOCATE 17,2:PRINT STRIN
G$(45,"-")                             (50A5)
2080 PLOT 51,300:DRAW 51,300:DRAW
85,300:PLOT 85,320:DRAW 85,320:DRA
W 85,280:PLOT 84,320:DRAW 84,320:D
RAW 84,280                              (4C44)
2090 PLOT 85,320:DRAW 85,320:DRAW
145,320:PLOT 85,280:DRAW 85,280:DR
AW 145,280                              (34B9)
2100 PLOT 145,320:DRAW 145,320:DRA
W 145,280:PLOT 144,320:DRAW 144,32
0:DRAW 144,280                          (34C4)
2110 PLOT 145,300:DRAW 145,300:DRA
W 190,300:PLOT 190,320:DRAW 190,32
0:DRAW 190,280:PLOT 191,320:DRAW 1
91,320:DRAW 191,280                    (4CF9)
2120 PLOT 190,280:DRAW 190,280:DRA
W 250,280:PLOT 190,320:DRAW 190,32
0:DRAW 250,320                          (34D3)
2130 PLOT 250,320:DRAW 250,320:DRA
W 250,280:PLOT 249,320:DRAW 249,32
0:DRAW 249,280                          (34DC)
2140 PLOT 250,300:DRAW 250,300:DRA
W 295,300:PLOT 295,280:DRAW 295,28
0:DRAW 295,320:PLOT 294,280:DRAW 2
94,280:DRAW 294,320                    (53E5)
2150 PLOT 295,320:DRAW 295,320:DRA
W 355,320:PLOT 295,280:DRAW 295,28
0:DRAW 355,280                          (3AB1)
2160 PLOT 355,320:DRAW 355,320:DRA
W 355,280:PLOT 354,320:DRAW 354,32
0:DRAW 354,280                          (3A15)
2170 PLOT 355,300:DRAW 355,300:DRA
W 400,300:PLOT 420,300:DRAW 420,30
0:DRAW 440,300:PLOT 460,300:DRAW 4
60,300:DRAW 505,300                    (5528)
2180 PLOT 505,320:DRAW 505,320:DRA
W 505,280:PLOT 504,280:DRAW 504,28
0:DRAW 504,320                          (3ADB)
2190 PLOT 505,320:DRAW 505,320:DRA
W 565,320:PLOT 505,280:DRAW 505,28
0:DRAW 565,280                          (3A01)
2200 PLOT 565,320:DRAW 565,320:DRA

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W 565,280:PLOT 564,320:DRAW 564,32
0:DRAW 564,280 (3A1D)
2210 PLOT 565,300:DRAW 565,300:DRA
W 610,300 (1F8A)
2220 ORIGIN 40,300:DEG:MOVE 0,10:F
OR a=1 TO 360:PLOT 10*COS(a),10*SI
N(a):NEXT (3BD9)
2230 ORIGIN 620,300:DEG:MOVE 0,10:
FOR a=1 TO 360:PLOT 10*COS(a),10*S
IN(a):NEXT (3CB7)
2240 LOCATE 15,9:PRINT"R1":LOCATE
28,9:PRINT"R2":LOCATE 40,9:PRINT"R
3":LOCATE 67,9:PRINT"Rn" (34EB)
2250 LOCATE 1,20:PRINT CHR$(24);"
Formel: ";CHR$(24);" Rges=R1+R2+R3
+....+Rn" (3F0C)
2260 a$=INKEY$:IF a$=""THEN 2260 (1902)
2270 IF a$="W"OR a$="w"THEN 1830 (1B1C)
2280 IF a$="H"OR a$="h"THEN CALL &
A000:GOTO 1830 (21E8)
2290 IF a$<>"W"AND a$<>"w"AND a$<>
"H"AND a$<>"h"THEN 2260 (2DA2)
2300 CLS:CLEAR (08CA)
2310 FOR a=1 TO 3:PRINT:NEXT:PRINT
SPACE$(11);"Berechnung eines Einz
elwiderstandes in der Reihenschalt
ung":PRINT STRING$(80,"-"):GOSUB 4
990 (6802)
2320 PRINT:INPUT"Wie gross soll de
r Gesamtwiderstand sein ";g (3823)
2330 IF g<=0 THEN GOSUB 4980:GOTO
2320 (16C0)
2340 a=0 (0B95)
2350 PRINT:PRINT"Wenn Sie fuer den
Widerstand 0 eingeben,so wird der
Einzelwiderstand ausge- rechn
et !" (63A7)
2360 PRINT:INPUT"Wie gross soll de
r andere Einzelwiderstand sein ";r
:GOTO 2380 (4454)
2370 PRINT:INPUT"Wie gross soll de
r naechste Einzelwiderstand sein "
;r (411C)
2380 IF r<0 THEN GOSUB 4980:GOTO 2
370 (1634)
2390 IF r>g THEN PRINT:PRINT"Der E
inzelwiderstand einer Reihenschalt
ung kann nie groesser als der Gesa
mt- widerstand der Reihenschalt
ung sein !":GOTO 2370 (8FAB)
2400 IF r=0 THEN GOTO 2420 (11F8)
2410 a=a+r:GOTO 2370 (182B)
2420 b=g-a (1318)
2430 IF b<=0 THEN PRINT CHR$(7):PR
INT"Die eingebenden Widerstaende w
aren falsch!":GOSUB 5020:ELSE PRIN
T CHR$(7):PRINT"Der Einzelwidersta
nd betraegt: ";b;" Ohm.":GOSUB 5020
(83BA)
2440 e$=INKEY$:IF e$<>"N"AND e$<>"

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J"AND e$<>"n"AND e$<>"j"THEN 2440 (35B0)
2450 IF e$="J"OR e$="j"THEN 2300 (1BEF)
2460 IF e$="N"OR e$="n"THEN 1830 (1B97)
2470 GOTO 220 (0929)
2480 CLS:CLEAR:GOSUB 5030 (0D31)
2490 PRINT (067B)
2500 PRINT SPACE$(18);"Sonderfaell
e der Widerstandsberechnungen":PRI
NT STRING$(80,"*"):GOSUB 5000 (48E1)
2510 PRINT CHR$(24);" (1) ";CHR$(2
4);" Spezifischer Widerstand" (361E)
2520 PRINT CHR$(24);" (2) ";CHR$(2
4);" Vorwiderstand" (2CFD)
2530 PRINT CHR$(24);" (3) ";CHR$(2
4);" Nebenwiderstand" (2EA3)
2540 PRINT CHR$(24);" (4) ";CHR$(2
4);" Normale Berechnung des Widers
tandes durch das ohm'sches Gesetz"
(5DAD)
2550 PRINT CHR$(24);" (5) ";CHR$(2
4);" Temperaturabhaengige Widersta
ende" (4031)
2560 PRINT CHR$(24);" (6) ";CHR$(2
4);" Stern-Dreieck oder Dreieck-St
ern" (3F6A)
2570 PRINT CHR$(24);" (7) ";CHR$(2
4);" Wheatstonesche Messbruecke" (394B)
2580 PRINT CHR$(24);" (8) ";CHR$(2
4);" Schaltbild und Formel fuer Pu
nkt (7)" (4356)
2590 PRINT CHR$(24);" (9) ";CHR$(2
4);" Rueckkehr zum Hauptmenue":PRI
NT:PRINT:GOSUB 4970:GOSUB 5010 (4555)
2600 e$=INKEY$:IF e$<"1"OR e$>"9"
THEN 2600 (2372)
2610 ON VAL(e$)GOTO 2620,2790,2970
,3150,4420,3430,3290,4590,4900 (325B)
2620 CLS:CLEAR (084D)
2630 FOR a=1 TO 2:PRINT:NEXT:PRINT
SPACE$(20);"Berechnung des spezif
ischen Widerstandes":PRINT STRING$
(80,"-") (51FD)
2640 PRINT"Geben Sie die Materialk
onstante (Rho) in (((Ohm*(mm^2))/m
) ein !" (48BD)
2650 PRINT"Geben Sie die Laenge (l
) in Meter ein !" (2F3A)
2660 PRINT"Geben Sie den Querschni
tt (A) in mm^2 ein !" (33FF)
2670 PRINT:PRINT CHR$(24);" Formel
: ";CHR$(24);" R=Rho*l/A":PRINT (3064)
2680 PRINT:INPUT"Wie gross soll Rh
o sein ";r (2731)
2690 IF r<=0 THEN GOSUB 4980:GOTO
2680 (1691)
2700 PRINT:INPUT"Wie gross soll l
sein ";l (25E9)
2710 IF l<=0 THEN GOSUB 4980:GOTO
2700 (16D7)
2720 PRINT:INPUT"Wie gross soll A

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sein ";A (258A) (Um) in Volt ein !" (312C)
2730 IF A<=0 THEN GOSUB 4980:GOTO 3020 PRINT:PRINT CHR$(24);" Formel
2720 (16B2) : ";CHR$(24);" R=(Um/(I-Im))":PRIN
2740 b=r*x1/A (18D6) T (34EF)
2750 PRINT CHR$(7):PRINT"Der spezi 3030 PRINT:INPUT"Wie gross soll I
fisches Widerstand betraegt:";b;" sein ";i (257E)
Ohm.":GOSUB 5020 (4633) 3040 IF i<=0 THEN GOSUB 4980:GOTO
2760 f$=INKEY$:IF f$<>"N"AND f$<>" 3030 (1603)
J"AND f$<>"n"AND f$<>"j"THEN 2760 (356F) 3050 PRINT:INPUT"Wie gross soll Im
2770 IF f$="J"OR f$="j"THEN 2620 (1BB9) sein ";im (2798)
2780 IF f$="N"OR f$="n"THEN 2480 (1B79) 3060 IF im<=0 THEN GOSUB 4980:GOTO
2790 CLS:CLEAR (08A0) 3050 (17FA)
2800 FOR a=1 TO 2:PRINT:NEXT:PRINT 3070 IF im>=i THEN PRINT:PRINT"Der
SPACE$(25);"Berechnung des Vorwid Endstrom (Im) kann nie groesser o
erstandes":PRINT STRING$(80,"-"):P der gleich dem Ausgangsstrom (I) s
RINT (49E2) ein !":GOTO 3050 (6705)
2810 PRINT"Geben Sie die Spannung 3080 PRINT:INPUT"Wie gross soll Um
(Um) (Endspannung) in Volt ein !" (3FD3) sein ";um (2761)
2820 PRINT"Geben Sie die Spannung 3090 IF um<=0 THEN GOSUB 4980:GOTO
(U) (Ausgangsspannung) in Volt ein 3080 (17D8)
!" (43C4) 3100 r=(um/(i-im)) (1E66)
2830 PRINT"Geben Sie den Strom (I) 3110 PRINT CHR$(7):PRINT"Der Neben
in Ampere ein !" (2F85) widerstand betraegt:";r;" Ohm.":GO
2840 PRINT:PRINT CHR$(24);" Formel SUB 5020 (3EFC)
: ";CHR$(24);" R=((U-Um)/I)":PRINT 3120 h$=INKEY$:IF h$<>"N"AND h$<>"
(333A) J"AND h$<>"n"AND h$<>"j"THEN 3120 (3580)
2850 PRINT:INPUT"Wie gross soll U 3130 IF h$="J"OR h$="j"THEN 2970 (1B9C)
sein ";U (25DF) 3140 IF h$="N"OR h$="n"THEN 2480 (1B63)
2860 IF U<=0 THEN GOSUB 4980:GOTO 3150 CLS:CLEAR (0873)
2850 (16FB) 3160 FOR a=1 TO 2:PRINT:NEXT:PRINT
2870 PRINT:INPUT"Wie gross soll Um SPACES$(13);"Berechnung des Widers
sein ";Um (27BB) tandes mit dem ohm'sches Gesetz":P
2880 IF Um<=0 THEN GOSUB 4980:GOTO RINT STRING$(80,"-"):PRINT (5FB7)
2870 (17F1) 3170 PRINT"Geben Sie die Spannung
2890 IF Um>=U THEN PRINT:PRINT"Die (U) in Volt ein !" (301C)
Endspannung (Um) kann nie groesse 3180 PRINT"Geben Sie den Strom (I)
r oder gleich der Ausgangsspannung in Ampere ein !" (2F43)
(U) sein !":GOTO 2870 (716F) 3190 PRINT:PRINT CHR$(24);" Formel
2900 PRINT:INPUT"Wie gross soll I : ";CHR$(24);" R=U/I":PRINT (2CBE)
sein ";i (2579) 3200 PRINT:INPUT"Wie gross soll U
2910 IF i<=0 THEN GOSUB 4980:GOTO sein ";u (251C)
2900 (16EC) 3210 IF u<0 THEN GOSUB 4980:GOTO 3
2920 r=((U-Um)/i) (1D89) 200 (1657)
2930 PRINT CHR$(7):PRINT"Der Vorwi 3220 PRINT:INPUT"Wie gross soll I
erstand betraegt:";r;" Ohm.":GOSU sein ";i (25FA)
B 5020 (3CDE) 3230 IF i<=0 THEN GOSUB 4980:GOTO
2940 g$=INKEY$:IF g$<>"n"AND g$<>" 3220 (1672)
j"AND g$<>"J"AND g$<>"N"THEN 2940 (3587) 3240 r=u/i (132A)
2950 IF g$="J"OR g$="j"THEN 2790 (1B89) 3250 PRINT CHR$(7):PRINT"Der Wider
2960 IF g$="N"OR g$="n"THEN 2480 (1B06) stand betraegt:";r;" Ohm.":GOSUB 5
2970 CLS:CLEAR (080A) 020 (3950)
2980 FOR a=1 TO 2:PRINT:NEXT:PRINT 3260 j$=INKEY$:IF j$<>"N"AND j$<>"
SPACE$(24);"Berechnung des Nebenw n"AND j$<>"J"AND j$<>"j"THEN 3260 (35F2)
iderstandes":PRINT STRING$(80,"-") 3270 IF j$="J"OR j$="j"THEN 3150 (1B71)
:PRINT (4B64) 3280 IF j$="N"OR j$="n"THEN 2480 (1B52)
2990 PRINT"Geben Sie den Strom (I) 3290 CLS:CLEAR (088A)
(Ausgangsstrom) in Ampere ein !" (3E5B) 3300 FOR a=1 TO 3:PRINT:NEXT:PRINT
3000 PRINT"Geben Sie den Strom (Im SPACES$(25);"Wheatstonesche Messbr
) (Endstrom) in Ampere ein !" (3BEA) uecke":PRINT STRING$(80,"-"):GOSUB
3010 PRINT"Geben Sie die Spannung 4990 (4834)

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3310 :PRINT:PRINT CHR$(24);" Forme
l: ";CHR$(24);" Rx=((R2/R1)/R3)" <352D>
3320 PRINT:INPUT"Wie gross soll de
r Widerstand (R1) sein ";r1 <38CC>
3330 IF r1<=0 THEN GOSUB 4980:GOTO
3320 <170B>
3340 PRINT:INPUT"Wie gross soll de
r Widerstand (R2) sein ";r2 <38EE>
3350 IF r2<=0 THEN GOSUB 4980:GOTO
3340 <1718>
3360 PRINT:INPUT"Wie gross soll de
r Widerstand (R3) sein ";r3 <3828>
3370 IF r3<=0 THEN GOSUB 4980:GOTO
3360 <171D>
3380 rx=((r2/r1)*r3) <20D6>
3390 PRINT CHR$(7):PRINT"Der Wider
stand (Rx) betraegt: ";rx;" Ohm.":G
OSUB 5020 <3F55>
3400 i$=INKEY$:IF i$<>"N"AND i$<>"
j"AND i$<>"J"AND i$<>"n"THEN 3400 <35EF>
3410 IF i$="J"OR i$="j"THEN 3290 <1BE3>
3420 IF i$="N"OR i$="n"THEN 2480 <1BA8>
3430 CLS:CLEAR <08A4>
3440 FOR a=1 TO 3:PRINT:NEXT:PRINT
SPACE$(20);"Stern -- Dreieck o. D
reieck -- Stern":PRINT STRING$(80,"
-"):GOSUB 5000 <5268>
3450 PRINT CHR$(24);" (1) ";CHR$(2
4);" Sternschaltung in Dreieckscha
ltung" <41A3>
3460 PRINT CHR$(24);" (2) ";CHR$(2
4);" Dreieckschaltung in Sternscha
ltung" <415B>
3470 PRINT CHR$(24);" (3) ";CHR$(2
4);" Schaltbild und Formel fuer Pu
nkt (1) u. (2)" <4AAE>
3480 PRINT CHR$(24);" (4) ";CHR$(2
4);" Formel fuer Punkt (1) u. (2)"
<3BA5>
3490 PRINT CHR$(24);" (5) ";CHR$(2
4);" Rueckkehr zum Untermenue":PRI
NT:PRINT:GOSUB 4970:GOSUB 5010 <4574>
3500 f$=INKEY$:IF f$<"1"OR f$>"5"
HEN 3500 <2342>
3510 ON VAL(f$)GOTO 3520,3700,3880
,4270,4410 <22D1>
3520 CLS:CLEAR <0857>
3530 FOR a=1 TO 3:PRINT:NEXT:PRINT
SPACE$(25);"Sternschaltung in Dre
ieckschaltung":PRINT STRING$(80,"-
"):GOSUB 4990 <5091>
3540 PRINT:INPUT"Wie gross soll de
r Widerstand (Ra) sein ";ra <3816>
3550 IF ra<=0 THEN GOSUB 4980:GOTO
3540 <1791>
3560 PRINT:INPUT"Wie gross soll de
r Widerstand (Rb) sein ";rb <3837>
3570 IF rb<=0 THEN GOSUB 4980:GOTO
3560 <17B8>
3580 PRINT:INPUT"Wie gross soll de

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r Widerstand (Rc) sein ";rc <386C>
3590 IF rc<=0 THEN GOSUB 4980:GOTO
3580 <17C2>
3600 r1=(((ra*rb)+(ra*rc)+(rb*rc))
/rc) <3EB4>
3610 r2=(((ra*rb)+(ra*rc)+(rb*rc))
/ra) <3EC7>
3620 r3=(((ra*rb)+(ra*rc)+(rb*rc))
/rb) <3E05>
3630 PRINT CHR$(7):PRINT"Aus den g
ebenden Daten entstehen folgende W
iderstaende:" <4655>
3640 PRINT:PRINT"Widerstand (R1) b
etraegt: ";r1;" Ohm." <3142>
3650 PRINT:PRINT"Widerstand (R2) b
etraegt: ";r2;" Ohm." <319C>
3660 PRINT:PRINT"Widerstand (R3) b
etraegt: ";r3;" Ohm.":GOSUB 5020 <36C9>
3670 m$=INKEY$:IF m$<>"N"AND m$<>"
J"AND m$<>"n"AND m$<>"j"THEN 3670 <35C5>
3680 IF m$="J"OR m$="j"THEN 3520 <1BE3>
3690 IF m$="N"OR m$="n"THEN 3430 <1B33>
3700 CLS:CLEAR <08C1>
3710 FOR a=1 TO 3:PRINT:NEXT:PRINT
SPACE$(25);"Dreieckschaltung in S
ternschaltung":PRINT STRING$(80,"-
"):GOSUB 4990 <5048>
3720 PRINT:INPUT"Wie gross soll de
r Widerstand (R1) sein ";r1 <38EF>
3730 IF r1<=0 THEN GOSUB 4980:GOTO
3720 <17B8>
3740 PRINT:INPUT"Wie gross soll de
r Widerstand (R2) sein ";r2 <380F>
3750 IF r2<=0 THEN GOSUB 4980:GOTO
3740 <17C0>
3760 PRINT:INPUT"Wie gross soll de
r Widerstand (R3) sein ";r3 <3848>
3770 IF r3<=0 THEN GOSUB 4980:GOTO
3760 <17C9>
3780 ra=((r1*r3)/(r1+r2+r3)) <2EF0>
3790 rb=((r1*r2)/(r1+r2+r3)) <2E90>
3800 rc=((r2*r3)/(r1+r2+r3)) <2EA7>
3810 PRINT CHR$(7):PRINT"Aus den g
ebenden Daten entstehen folgende W
iderstaende:" <46BC>
3820 PRINT:PRINT"Widerstand (Ra) b
etraegt: ";ra;" Ohm." <3164>
3830 PRINT:PRINT"Widerstand (Rb) b
etraegt: ";rb;" Ohm." <311D>
3840 PRINT:PRINT"Widerstand (Rc) b
etraegt: ";rc;" Ohm.":GOSUB 5020 <36FB>
3850 k$=INKEY$:IF k$<>"N"AND k$<>"
J"AND k$<>"n"AND k$<>"j"THEN 3850 <35E3>
3860 IF k$="J"OR k$="j"THEN 3700 <1BDD>
3870 IF k$="N"OR k$="n"THEN 3430 <1B6F>
3880 REM Schaltbild Stern in Dreic
k o. Dreieck in Stern <3478>
3890 MODE 2:CLS:LOCATE 14,1:PRINT"
Schaltbild fuer Stern in Dreieck o.
Dreieck in Stern":LOCATE 13,2:PRIN

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T STRING$(52,"-") (5781) RAW 591,300:DRAW 591,260 (70AC)
3900 PLOT 100,320:DRAW 100,320:DRA 4030 PLOT 450,260:DRAW 450,260:DRA
W 100,290:PLOT 101,320:DRAW 101,32  W 490,260:PLOT 570,260:DRAW 570,26
0:DRAW 101,290 (3447) 0:DRAW 610,260 (3A01)
3910 PLOT 80,290:DRAW 80,290:DRAW 4040 PLOT 450,260:DRAW 450,260:DRA
120,290:PLOT 80,290:DRAW 80,290:DR  W 450,200:PLOT 451,260:DRAW 451,26
AW 80,230:PLOT 81,290:DRAW 81,290:  0:DRAW 451,200:PLOT 490,260:DRAW 4
DRAW 81,230 (4AED) 90,260:DRAW 490,200:PLOT 491,260:D
3920 PLOT 120,290:DRAW 120,290:DRA  RAW 491,260:DRAW 491,200 (6CA9)
W 120,230:PLOT 121,290:DRAW 121,29  4050 PLOT 570,260:DRAW 570,260:DRA
0:DRAW 121,230:PLOT 80,230:DRAW 80  W 570,200:PLOT 571,260:DRAW 571,26
,230:DRAW 120,230:PLOT 100,230:DRA  0:DRAW 571,200:PLOT 610,260:DRAW 6
W 100,230:DRAW 100,200:PLOT 101,23  10,260:DRAW 610,200:PLOT 611,260:D
0:DRAW 101,230:DRAW 101,200 (71A2)  RAW 611,260:DRAW 611,200 (6C6D)
3930 PLOT 60,200:DRAW 60,200:DRAW 4060 PLOT 450,200:DRAW 450,200:DRA
140,200:PLOT 60,200:DRAW 60,200:DR  W 490,200:PLOT 570,200:DRAW 570,20
AW 60,170:PLOT 61,200:DRAW 61,200:  0:DRAW 610,200 (3419)
DRAW 61,170 (4359) 4070 PLOT 470,200:DRAW 470,200:DRA
3940 PLOT 140,200:DRAW 140,200:DRA  W 470,160:PLOT 471,200:DRAW 471,20
W 140,170:PLOT 141,200:DRAW 141,20  0:DRAW 471,160:PLOT 590,200:DRAW 5
0:DRAW 141,170 (2E06) 90,200:DRAW 590,160:PLOT 591,200:D
3950 PLOT 40,170:DRAW 40,170:DRAW  RAW 591,200:DRAW 591,160 (6449)
80,170:PLOT 120,170:DRAW 120,170:D  4080 PLOT 590,160:DRAW 590,160:DRA
RAW 160,170 (2EFF)  W 470,160:PLOT 530,160:DRAW 530,16
3960 PLOT 40,170:DRAW 40,170:DRAW  0:DRAW 530,120:PLOT 531,160:DRAW 5
40,110:PLOT 41,170:DRAW 41,170:DRA  31,160:DRAW 531,120:PLOT 500,320:D
W 41,110:PLOT 80,170:DRAW 80,170:D  RAW 500,320:DRAW 500,280:PLOT 501,
RAW 80,110:PLOT 81,170:DRAW 81,170  320:DRAW 501,320:DRAW 501,280 (8298)
:DRAW 81,110 (580D) 4090 PLOT 560,320:DRAW 560,320:DRA
3970 PLOT 120,170:DRAW 120,170:DRA  W 560,280:PLOT 561,320:DRAW 561,32
W 120,110:PLOT 121,170:DRAW 121,17  0:DRAW 561,280 (3A0C)
0:DRAW 121,110:PLOT 160,170:DRAW 1  4100 DEG:FOR a=1 TO 360:MOVE 100,2
60,170:DRAW 160,170:DRAW 160,110:P  00:DRAW 100+5*COS(a),200+5*SIN(a):
LOT 161,170:DRAW 161,170:DRAW 161,  NEXT (3812)
110 (5F48) 4110 DEG:FOR a=1 TO 360:MOVE 530,1
3980 PLOT 40,110:DRAW 40,110:DRAW  60:DRAW 530+5*COS(a),160+5*SIN(a):
80,110:PLOT 120,110:DRAW 120,110:D  NEXT (3A6C)
RAW 160,110:PLOT 60,110:DRAW 60,11  4120 DEG:FOR a=1 TO 360:MOVE 470,3
0:DRAW 60,80:PLOT 61,110:DRAW 61,1  00:DRAW 470+5*COS(a),300+5*SIN(a):
10:DRAW 61,80 (588E)  NEXT (3CCE)
3990 PLOT 140,110:DRAW 140,110:DRA  4130 DEG:FOR a=1 TO 360:MOVE 590,3
W 140,80:PLOT 141,110:DRAW 141,110  00:DRAW 590+5*COS(a),300+5*SIN(a):
:DRAW 141,80 (2EE2)  NEXT (3CDA)
4000 PLOT 250,200:DRAW 250,200:DRA  4140 ORIGIN 100,330:DEG:MOVE 0,10:
W 350,200:PLOT 350,200:DRAW 350,20  FOR a=1 TO 360:PLOT 10*COS(a),10*S
0:DRAW 340,215:PLOT 350,200:DRAW 3  IN(a):NEXT (3B71)
50,200:DRAW 340,185:PLOT 250,160:D  4150 ORIGIN 60,70:DEG:MOVE 0,10:FO
RAW 250,160:DRAW 350,160:PLOT 250,  R a=1 TO 360:PLOT 10*COS(a),10*SIN
160:DRAW 250,160:DRAW 260,175:PLOT  (a):NEXT (3ABE)
250,160:DRAW 250,160:DRAW 260,145  4160 ORIGIN 140,70:DEG:MOVE 0,10:F
(8C58)  OR a=1 TO 360:PLOT 10*COS(a),10*SI
4010 PLOT 500,320:DRAW 500,320:DRA  N(a):NEXT (3AD1)
W 560,320:PLOT 500,300:DRAW 500,30  4170 ORIGIN 530,110:DEG:MOVE 0,10:
0:DRAW 440,300:PLOT 560,300:DRAW 5  FOR a=1 TO 360:PLOT 10*COS(a),10*S
60,300:DRAW 615,300:PLOT 500,280:D  IN(a):NEXT (3B2F)
RAW 500,280:DRAW 560,280 (7032)  4180 ORIGIN 625,300:DEG:MOVE 0,10:
4020 PLOT 470,300:DRAW 470,300:DRA  FOR a=1 TO 360:PLOT 10*COS(a),10*S
W 470,260:PLOT 471,300:DRAW 471,30  IN(a):NEXT (3C3B)
0:DRAW 471,260:PLOT 590,300:DRAW 5  4190 ORIGIN 430,300:DEG:MOVE 0,10:
90,300:DRAW 590,260:PLOT 591,300:D  FOR a=1 TO 360:PLOT 10*COS(a),10*S

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IN(a):NEXT (3C53) 4480 PRINT:INPUT"Wie gross soll Rk
4200 LOCATE 10,25:PRINT CHR$(24);" sein ";rk (2741)
Stern ";CHR$(24):LOCATE 64,25:PRI 4490 IF rk<=0 THEN GOSUB 4980:GOTO
NT CHR$(24);" Dreieck ";CHR$(24) (46BA) 4480 (179C)
4210 LOCATE 38,14:PRINT"in":LOCATE 4500 PRINT:INPUT"Wie gross soll t
8,9:PRINT"Ra":LOCATE 3,17:PRINT"R sein ";t (251D)
b":LOCATE 13,17:PRINT"Rc" (351D) 4510 IF t<=0 THEN GOSUB 4980:GOTO
4220 LOCATE 66,4:PRINT"R3":LOCATE 4500 (1637)
54,11:PRINT"R1":LOCATE 69,11:PRINT 4520 PRINT:PRINT"Wie gross soll "C
"R2" (2A24) HR$(176)" sein ";:INPUT a (2E09)
4230 a$=INKEY$:IF a$=""THEN 4230 (191C) 4530 IF a<=0 THEN GOSUB 4980:GOTO
4240 IF a$="W"OR a$="w"THEN 4270 (1BE9) 4520 (164E)
4250 IF a$="H"OR a$="h"THEN CALL & 4540 rw=rk*(1+a*t) (1E22)
A000:GOTO 4270 (21B4) 4550 PRINT CHR$(7):PRINT"Der Warmw
4260 IF a$(">"W"AND a$(">"w"AND a$("> iderstand betraegt.":rw;" Ohm.":GO
"H"AND a$(">"h"THEN 4230 (2DBD) SUB 5020 (3EE2)
4270 CLS:LOCATE 16,2:PRINT"Formeln 4560 s$=INKEY$:IF s$(">"N"AND s$(">"
fuer Stern in Dreieck o. Dreieck in J"AND s$(">"n"AND s$(">"j"THEN 4560 (354C)
Stern":LOCATE 15,3:PRINT STRING$( 4570 IF s$="J"OR s$="j"THEN 4420 (1B57)
49,"-") (5106) 4580 IF s$="N"OR s$="n"THEN 2480 (1BB4)
4280 FOR a=1 TO 4:PRINT:NEXT (128A) 4590 REM Schaltbild fuer Whestoene
4290 PRINT CHR$(24);" Formeln fuer sche Messbruecke (308A)
Stern -> Dreieck ";CHR$(24) (3690) 4600 MODE 2:CLS:LOCATE 18,1:PRINT"
4300 LOCATE 35,8:PRINT" R1=((Ra*R Schaltbild fuer Whestoenesche Mess
b)+(Ra*Rc)+(Rb*Rc))/Rc)" (30EC) bruecke":LOCATE 17,2:PRINT STRING$(
4310 LOCATE 35,10:PRINT" R2=((Ra*R (43,"-") (4E9F)
Rb)+(Ra*Rc)+(Rb*Rc))/Ra)" 4610 PLOT 100,320:DRAW 100,320:DRA
4320 LOCATE 35,12:PRINT" R3=((Ra* W 160,320:PLOT 160,300:DRAW 160,30
Rb)+(Ra*Rc)+(Rb*Rc))/Rb)" (31E8) 0:DRAW 310,300:PLOT 310,320:DRAW 3
4330 PRINT:PRINT:PRINT CHR$(24);" 10,320:DRAW 370,320 (50AB)
Formeln fuer Dreieck -> Stern ";C 4620 PLOT 100,280:DRAW 100,280:DRA
HR$(24) (3AC3) W 160,280:PLOT 310,280:DRAW 310,28
4340 LOCATE 35,15:PRINT" Ra=((R1*R 0:DRAW 370,280 (374D)
3)/(R1+R2+R3))" (273E) 4630 PLOT 100,170:DRAW 100,170:DRA
4350 LOCATE 35,17:PRINT" Rb=((R1*R W 160,170:PLOT 310,170:DRAW 310,17
2)/(R1+R2+R3))" (27A8) 0:DRAW 370,170 (31D5)
4360 LOCATE 35,19:PRINT" Rc=((R2*R 4640 PLOT 160,150:DRAW 160,150:DRA
3)/(R1+R2+R3))" (2734) W 310,150:PLOT 100,130:DRAW 100,13
4370 a$=INKEY$:IF a$=""THEN 4370 (199E) 0:DRAW 160,130:PLOT 310,130:DRAW 3
4380 IF a$="W"OR a$="w"THEN 3430 (1BBB) 10,130:DRAW 370,130 (47C0)
4390 IF a$="H"OR a$="h"THEN CALL & 4650 PLOT 100,300:DRAW 100,300:DRA
A000:GOTO 3430 (2188) W 50,300:PLOT 370,300:DRAW 370,300
4400 IF a$(">"W"AND a$(">"w"AND a$("> :DRAW 420,300:PLOT 100,150:DRAW 10
"H"AND a$(">"h"THEN 4370 (2D36) 0,150:DRAW 50,150:PLOT 370,150:DRA
4410 GOTO 2480 (091B) W 370,150:DRAW 420,150 (646C)
4420 CLS:CLEAR (0864) 4660 PLOT 50,300:DRAW 50,300:DRAW
4430 FOR a=1 TO 2:PRINT:NEXT:PRINT 50,150:PLOT 51,300:DRAW 51,300:DRA
SPACE$(15);"Berechnung von temper W 51,150:PLOT 420,300:DRAW 420,300
aturabhaengigen Widerstaenden":PRI :DRAW 420,150:PLOT 421,300:DRAW 42
NT STRING$(80,"-"):PRINT (5D89) 1,300:DRAW 421,150 (66CE)
4440 PRINT"Geben Sie den Kaltwider 4670 PLOT 50,225:DRAW 50,225:DRAW
stand (Rk) in Ohm ein !" (36AE) 30,225:PLOT 420,225:DRAW 420,225:D
4450 PRINT"Geben Sie die Temperatu RAW 440,225 (31C1)
raenderung (t) in Kelvin ein !" (3D74) 4680 PLOT 235,300:DRAW 235,300:DRA
4460 PRINT"Geben Sie den Tempertau W 235,249:PLOT 235,150:DRAW 235,15
rbeiwert ("CHR$(176)") in 1/Kelvin 0:DRAW 235,200:PLOT 234,300:DRAW 2
ein !" (4405) 34,300:DRAW 234,249:PLOT 234,150:D
4470 PRINT:PRINT CHR$(24);" Formel RAW 234,150:DRAW 234,200 (5C6E)
: ";CHR$(24);" R=Rk*(1+"CHR$(176)" 4690 PLOT 100,320:DRAW 100,320:DRA
*t)":PRINT (3AEB) W 100,280:PLOT 101,320:DRAW 101,32

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0: DRAW 101,280 (34F6)
4700 PLOT 160,320: DRAW 160,320: DRA
W 160,280: PLOT 161,320: DRAW 161,32
0: DRAW 161,280 (3464)
4710 PLOT 100,170: DRAW 100,170: DRA
W 100,130: PLOT 101,170: DRAW 101,17
0: DRAW 101,130 (2E02)
4720 PLOT 310,170: DRAW 310,170: DRA
W 310,130: PLOT 311,170: DRAW 311,17
0: DRAW 311,130 (34B4)
4730 PLOT 370,170: DRAW 370,170: DRA
W 370,130: PLOT 371,170: DRAW 371,17
0: DRAW 371,130 (34B8)
4740 PLOT 160,170: DRAW 160,170: DRA
W 160,130: PLOT 161,170: DRAW 161,17
0: DRAW 161,130 (2EFF)
4750 PLOT 310,320: DRAW 310,320: DRA
W 310,280: PLOT 311,320: DRAW 311,32
0: DRAW 311,280 (3A99)
4760 PLOT 370,320: DRAW 370,320: DRA
W 370,280: PLOT 371,320: DRAW 371,32
0: DRAW 371,280 (3A1E)
4770 DEG: FOR a=1 TO 360: MOVE 235,3
00: DRAW 235+5*COS(a),300+5*SIN(a):
NEXT (3ACF)
4780 DEG: FOR a=1 TO 360: MOVE 235,1
50: DRAW 235+5*COS(a),150+5*SIN(a):
NEXT (38AD)
4790 DEG: FOR a=1 TO 360: MOVE 50,22
5: DRAW 50+5*COS(a),225+5*SIN(a): NE
XT (385A)
4800 DEG: FOR a=1 TO 360: MOVE 420,2
25: DRAW 420+5*COS(a),225+5*SIN(a):
NEXT (3A4F)
4810 ORIGIN 235,225: DEG: MOVE 0,20:
FOR a=1 TO 360: PLOT 20*COS(a),20*S
IN(a): NEXT (3A1E)
4820 ORIGIN 20,225: DEG: MOVE 0,10: F
OR a=1 TO 360: PLOT 10*COS(a),10*S
IN(a): NEXT (3A0D)
4830 ORIGIN 450,225: DEG: MOVE 0,10:
FOR a=1 TO 360: PLOT 10*COS(a),10*S
IN(a): NEXT (3B7B)
4840 LOCATE 16,9: PRINT "R2": LOCATE
43,9: PRINT "Rx": LOCATE 16,19: PRINT "
R1": LOCATE 43,19: PRINT "R3": LOCATE
25,12: PRINT "M1" (43F2)
4850 LOCATE 1,22: PRINT CHR$(24); "
Formel: "; CHR$(24); " Rx=((R2/R1)*R
3) M1=Strommess
instrument" (62FF)
4860 a$=INKEY$: IF a$="" THEN 4860 (19C6)
4870 IF a$="W" OR a$="w" THEN 2480 (1BCB)
4880 IF a$="H" OR a$="h" THEN CALL &
A000: GOTO 2480 (2198)
4890 IF a$("<"W" AND a$("<"w" AND a$("<"
H" AND a$("<"h" THEN 4860 (2D63)
4900 GOTO 220 (<0930)
4910 CLS: CLEAR: LOCATE 17,13: PRINT
CHR$(24); " Wollen Sie wirklich da

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s Programm verlassen ? "; CHR$(24) (519A)
4920 a$=INKEY$: IF a$="" THEN 4920 (1926)
4930 IF a$("<"N" AND a$("<"J" AND a$("<"
n" AND a$("<"j" THEN 4920 (2DBE)
4940 IF a$="J" OR a$="j" THEN CALL 0 (1AB8)
4950 IF a$="n" OR a$="N" THEN 220 (1B0E)
4960 END (<0636)
4970 PRINT: PRINT "Sie brauchen nur
die Zahl in der Klammer eingeben !
": RETURN (3F5B)
4980 PRINT: PRINT "Falsch Eingabe !"
: RETURN (1C88)
4990 PRINT: PRINT "Geben Sie die Wid
erstaende in Ohm ein !": RETURN (330E)
5000 PRINT: PRINT "Was wollen Sie be
rechnen ?": PRINT: RETURN (28E3)
5010 PRINT: PRINT "Fuer welches Prog
ramm haben Sie sich entschieden ?"
: RETURN (3E89)
5020 PRINT: PRINT "Noch eine Rechnun
g ?": RETURN (201F)
5030 PRINT SPACE$(25); : PRINT STRIN
G$(25,"*") (1949)
5040 PRINT SPACE$(25); : PRINT "*" ; CH
R$(24); " U N T E R M E N U E "; C
HR$(24); "*" (3EF8)
5050 PRINT SPACE$(25); : PRINT STRIN
G$(25,"*"): RETURN (1B5D)
5060 END (<06FE)
5070 REM hardcopy-routine (17DE)
5080 RESTORE 5100 (<0949)
5090 FOR i=&A000 TO &A0BF: READ b: P
OKE i,b:s=s+b: NEXT (346B)
5100 DATA &cd,&ba,&bb,&cd,&e7,&bb,
&32,&bd,&a0,&cd,&6c,&a0,&21,&8f,&0
1,&22 (4624)
5110 DATA &be,&a0,&11,&00,&00,&3e,
&07,&32,&c0,&a0,&cd,&7c,&a0,&0e,&0
0,&3a (46AE)
5120 DATA &c0,&a0,&47,&e5,&d5,&c5,
&cd,&f0,&bb,&c1,&d1,&21,&bd,&a0,&b
e,&e1 (4691)
5130 DATA &37,&20,&01,&a7,&cb,&11,
&2b,&2b,&10,&e9,&cd,&af,&a0,&79,&c
d,&a6 (4619)
5140 DATA &a0,&13,&e5,&21,&7f,&02,
&37,&ed,&52,&e1,&38,&05,&2a,&be,&a
0,&18 (46E9)
5150 DATA &cc,&23,&7c,&b5,&c8,&2b,
&11,&00,&00,&22,&be,&a0,&3e,&07,&b
d,&20 (468A)
5160 DATA &b9,&7c,&b4,&20,&b5,&3e,
&04,&32,&c0,&a0,&18,&ae,&3e,&1b,&c
d,&a6 (4658)
5170 DATA &a0,&3e,&41,&cd,&a6,&a0,
&3e,&07,&cd,&a6,&a0,&c9,&e5,&3e,&4
2,&cd (4686)
5180 DATA &1e,&bb,&e1,&28,&02,&e1,

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&c9 , &3e , &0d , &cd , &a6 , &a0 , &3e , &0a , &c  
d , &a6 <4669>

5190 DATA &a0 , &3e , &1b , &cd , &a6 , &a0 ,  
&3e , &4c , &cd , &a6 , &a0 , &3e , &7f , &cd , &a  
6 , &a0 <46CA>

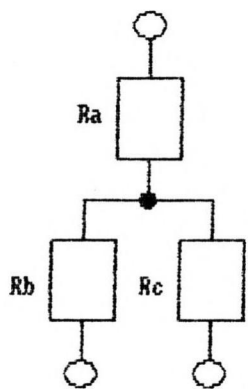
5200 DATA &3e , &02 , &cd , &a6 , &a0 , &c9 ,

&cd , &2e , &bd , &38 , &fb , &cd , &2b , &bd , &c  
9 , &3a <4696>

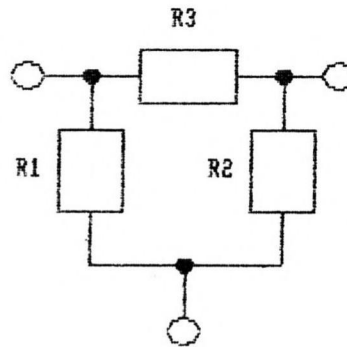
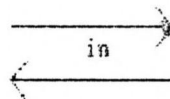
5210 DATA &c0 , &a0 , &fe , &07 , &c8 , &af ,  
&cb , &11 , &cb , &11 , &cb , &11 , &c9 , &00 , &0  
0 , &00 <4692>

5220 RETURN <0603>

Schaltbild fuer Stern in Dreick o. Dreick in Stern



Stern



Dreieck

Formeln fuer Stern in Dreick o. Dreick in Stern

**Formeln fuer Stern -> Dreieck :**

$$R1 = ((Ra * Rb) + (Ra * Rc) + (Rb * Rc)) / Rc$$

$$R2 = ((Ra * Rb) + (Ra * Rc) + (Rb * Rc)) / Ra$$

$$R3 = ((Ra * Rb) + (Ra * Rc) + (Rb * Rc)) / Rb$$

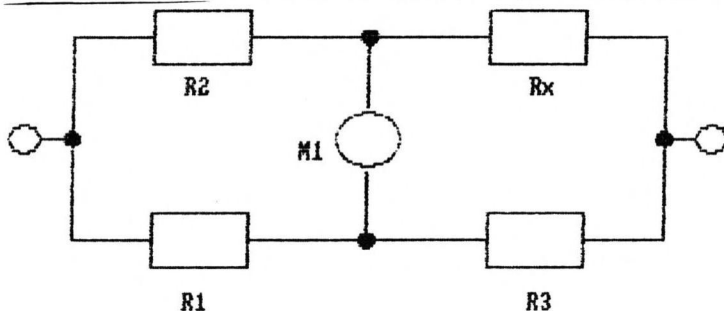
**Formeln fuer Dreieck -> Stern :**

$$Ra = (R1 * R3) / (R1 + R2 + R3)$$

$$Rb = (R1 * R2) / (R1 + R2 + R3)$$

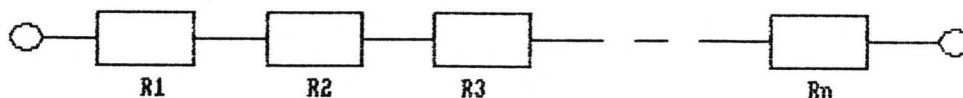
$$Rc = (R2 * R3) / (R1 + R2 + R3)$$

Schaltbild fuer Whestoenesche Messbruecke



**Formel :**  $Rx = ((R2 / R1) * R3)$       M1 = Strommessinstrument

Schaltbild fuer n-verschiedene Widerstaende



**Formel :**  $R_{ges} = R1 + R2 + R3 + \dots + Rn$