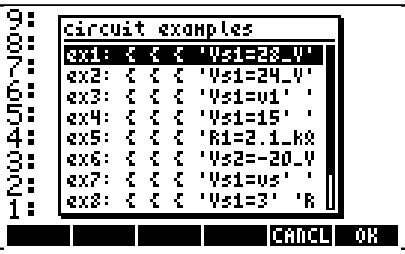
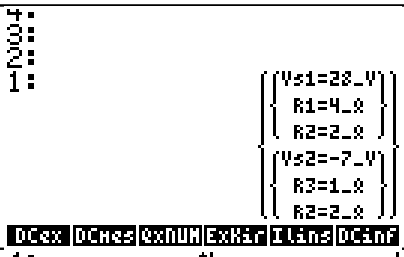
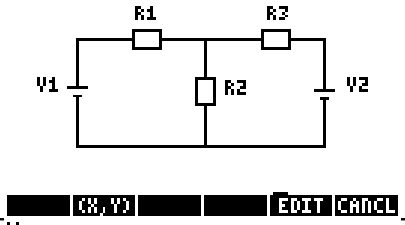
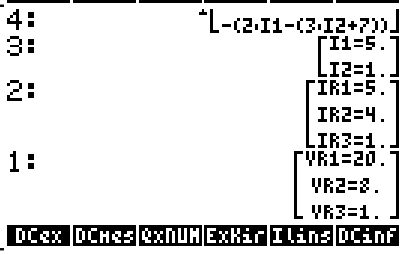
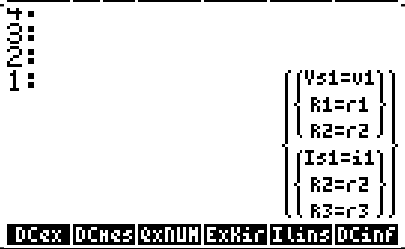
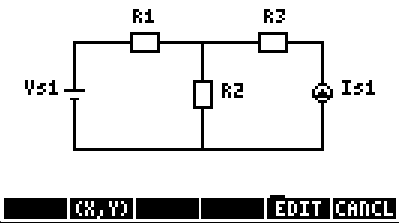
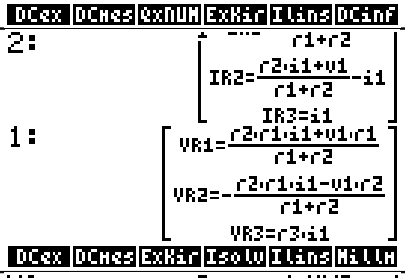
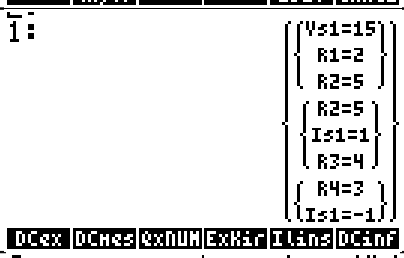
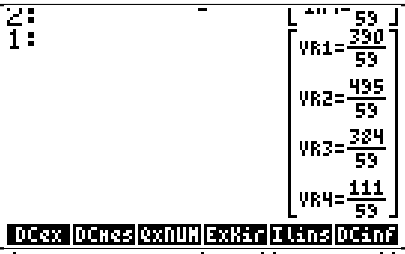
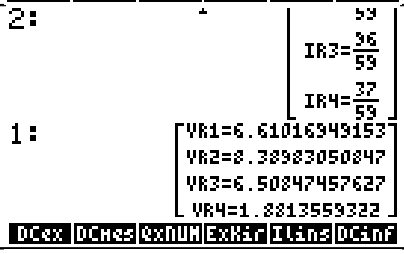
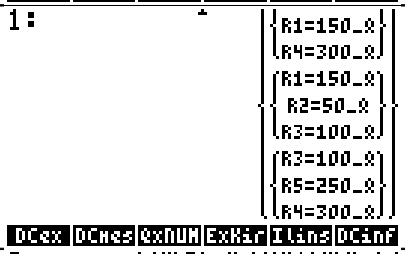
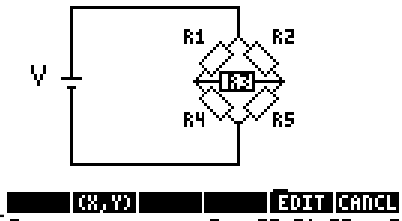
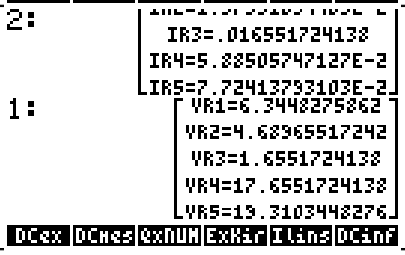
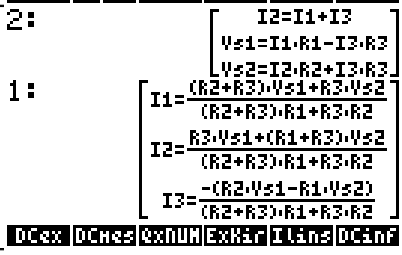
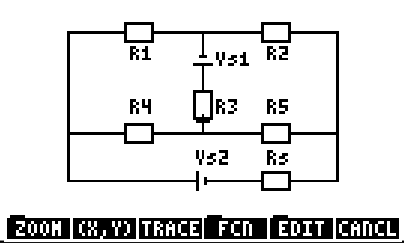
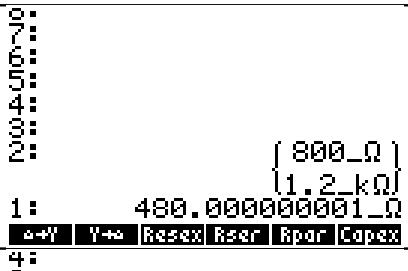
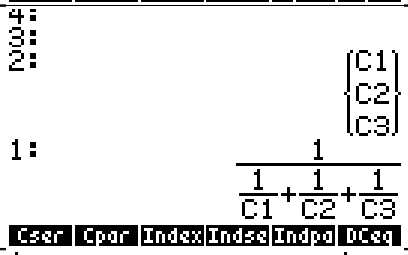
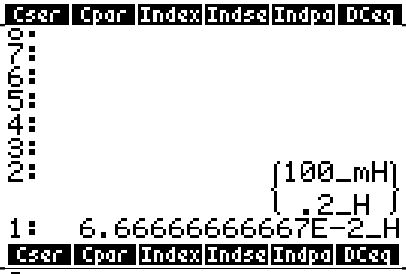
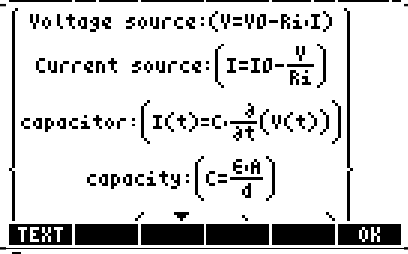
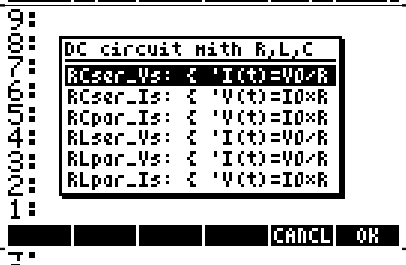
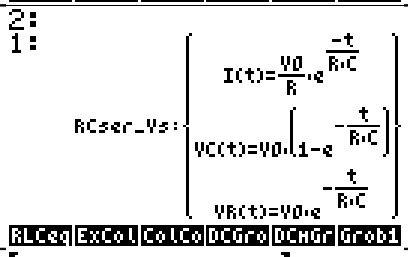
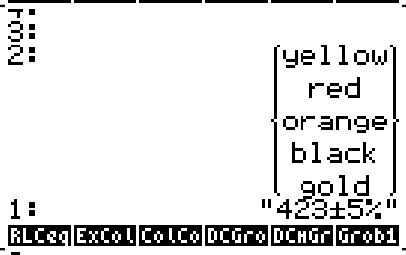
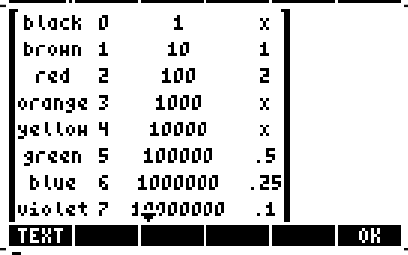
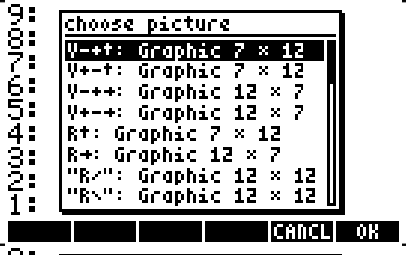
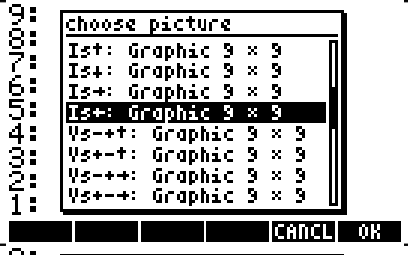
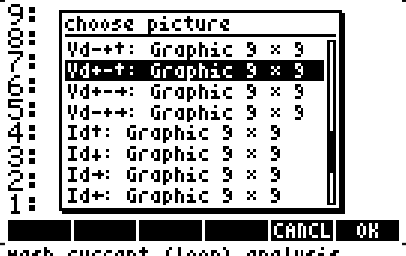
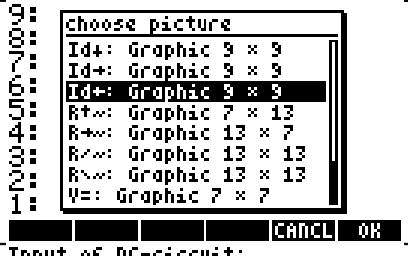
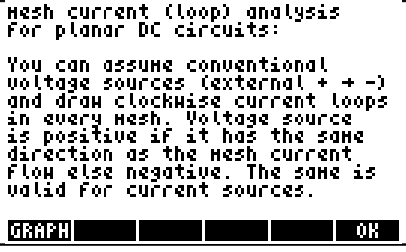
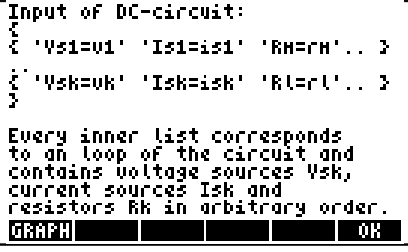
DCCIRC

Dcex: examples for DC circuits [OK] shows list		
Cursor left shows the corresponding graph of circuit DCmesh: solves for currents and voltages in circuit (5s)		
an symbolic example graph of circuit		
DCmesh: solutions (7s) Example with supermesh		
solutions (8s) QxNUM: symbolic x numeric		
example with Wheatstone bridge graph		
DCmesh: solutions (9s) ExKirchhoff: examples with Kirchhoff equations Isolve: solution (7s)		
example graph of circuit		

DCmesh: solutions (10s) next example	2: IR5=-6.71880042018E-4 IRs=4.38223935274E-4 1: VR1=2.23364062904 VR2=-.233640629044 VR3=7.26476302938 VR4=2.5015962815 VR5=-4.50159628152 VRs=0. DCex DCmes ExNUM ExRat ILans DCinf	{ { 'Vs2=-20_V' 'R1=3_Ω' 'R2=2_Ω ' } { 'R1=3_Ω' 'Ra=0' 'Vs1=30_V' } { 'Vs1=-30_V' 'Rb=0' 'R3=6_Ω' } { 'R2=2_Ω' 'R3=6_Ω' 'R4=10_Ω' } } ←SKIP SKIP→ ←DEL DEL→ DEL L INS
graph of circuit DCmesh: solution (11s)	R1 Ra Vs1 Vs2 Rb R2 R3 R4	2: IRa=13. IRb=-7. 1: VR1=-30. VR2=10. VR3=-30. VR4=-20. VRa=0. VRb=0. DCex DCmes ExRat IsoLW ILans DCinf
symbolic example: current dependent voltage source graph of circut	4: 3: 2: 1: { { Vs1=vs R1=r1 R3=r3 } { R3=r3 R2=r2 Vs2=-3·(I1-I2) } } DCex DCmes ExNUM ExRat ILans DCinf	R1 R2 Ix Vs1 R3 Vs2 3Ix ZOOM (X,Y) TRACE FCN EDIT CANCL
DCmesh: solution (14s) example: voltage dependent voltage source	2: IR3=((r2+r3-3)·r1+3·r2)/((vs·r2)/((r2+r3-3)·r1+r3·r2)) 1: VR1=((vs·r2+vs·r3-3·vs)·r1)/((r2+r3-3)·r1+r3·r2) VR2=((vs·r3-3·vs)·r2)/((r2+r3-3)·r1+r3·r2) VR3=(vs·r3·r2)/((r2+r3-3)·r1+r3·r2) DCex DCmes ExNUM ExRat ILans DCinf	4: 3: 2: 1: { { { Vs1=3 R1=100 R2=200 } { R2=200 Vs2=5·200·(I1-I2) } } R3=300 } DCex DCmes ExNUM ExRat ILans DCinf
graph DCmesh solutions(6s)	R1 Vs2=5×Vx Vs1 Vx R2 R3 ZOOM (X,Y) TRACE FCN EDIT CANCL	2: IR3=700/175 1: VR1=15/7 VR2=6/7 VR3=36/7 DCex DCmes ExNUM ExRat ILans DCinf
example: voltage dependent current source graph of circuit	4 { 'Is1=.5×4×(I1-I2)' 'R2=2' ' R4=4' } { 'Is2=2' 'R4=4' 'Vs1=-3 ' } { 'Vs1=3' 'R2=2' 'R3=6' } } ←SKIP SKIP→ ←DEL DEL→ DEL L INS	Vx/2 Is1 R4 R2 R3 Is2 Vx Vs1 ZOOM (X,Y) TRACE FCN EDIT CANCL
DCmesh solutions(6s) example: current dependent current source	3: I2=2 I3=11/8 2: IR2=2.625 IR3=1.375 IR4=2. 1: VR2=5.25 VR3=8.25 VR4=8. DCex DCmes ExNUM ExRat ILans DCinf	4 { 'Is1=2' 'R1=7' 'Vs1=-3' } { 'Vs1=3' 'R1=7' 'R2=15' 'R3=5' } { 'R3=5' 'Is2=-4×(I2-I3)' } } ←SKIP SKIP→ ←DEL DEL→ DEL L INS
graph of circuit DCmesh solutions(6s)	R2 R1 Ix Is1 R3 Is2 4Ix Vs1 ZOOM (X,Y) TRACE FCN EDIT CANCL	3: I3=61/68 2: IR1=1.16393442623 IR2=.836065573771 IR3=-.278688524591 1: VR1=8.14754098361 VR2=12.5409836066 VR3=-1.39344262295 DCex DCmes ExNUM ExRat ILans DCinf

Δ–>Y: conversion (0.8s) Y->Δ: conversion (1.8s) Rpar: parallel resistors (0.2s)		
Cpar: parallel capacitors (1.7s) Cser: serial capacitors (0.1s)		
Lpar: parallel inductors (0.2s) DCeq: DC equations		
RLCeq: equations for RLC [OK] : one example		
Resistor color code for four or five colors (0.7s) color code table		
DCGrob: choose graphic object (grob)		
DCGrob		
DCinfo: info on circuits		

DCinfo: info on circuits	We recommend however to start from the lower left corner and to proceed clockwise for every mesh. Then it should be easy to draw the circuit from the list of lists. Loop currents are named I1,I2.. in the order of the lists, resistors are named R1,R2.., voltage sources are Vs1,Vs2.., current sources are Is1,Is2.. GRAPH OK	Dependent voltage (current) sources must be appear in the circuit loop lists as Vsk=a×VX,b×IX (Isk=c×VX,d×IX) where VX or IX must be expressed by the loop currents I1..In: VX=Rk×(Ii-Ij),Rk×Ik IX=(Ii-Ij),Ik Important hints: If you want the current in a branch without resistor or if GRAPH OK
HelpDC:	DC direct current DCex _ → {}..{}} choosebox with examples for DCmesh. press cursor left to see a graphic of the circuit DCmesh {{}..{}} → {} [Ikeq] [Ik=..] [IRk=..] [VRk=..] mesh analysis for planar networks, details: DCinfo results are for Ik in A and for Vk in V GRAPH OK	ExNUM {},[] → {}',[]' equations: FRACTIONS ↔ NUMERICAL ExKirchhoff _ → {} Kirchhoff equations of circuit Ilinsolve {} → {} linsolve for Ik DCinfo _ → detailed info on DC mesh current analysis Δ→Y {R1 R2 R3} → {Ra Rb Rc} Δ(Delta) to Y(Wye) conversion Y→Δ {Ra Rb Rc} → {R1 R2 R3} Y(Wye) to Δ(Delta) GRAPH OK
HelpDC:	Resex _ → {} examples resistors Resser {} → R serial resistors Respar {} → R parallel resistors Capex _ → {} examples capacitors Capser {} → C serial capacitors Cappar {} → C parallel capacitors Index _ → {} examples inductors Indser {} → L serial inductors Indpar {} → L parallel inductors DCeq _ → {} DC equations RLCeq _ → {} equations for DC-circuits with R,L,C GRAPH OK	ExColCode _ → {} example for resistor color code with 4 or 5 colors ColCode {},X → {} R,[] calculate resistance, or display color code table for input of X = no list. table: name, sign.digit, multiplier, tolerance. {}=1. digit, 2. digit, (3. digit - 5 color code) exponent, tolerance of R GRAPH OK
HelpDC:	(3. digit - 5 color code) exponent, tolerance of R DC(M)Grob _ → grob, choose (Mini)grob for drawing circuits Grob1 text,string → grob size 1 Gron _ → _ switches grid on Groff _ → _ switches grid off for circuit drawing Gr?off _ → _ switches grid off for circuit drawing if neighbored pixels are off GRAPH OK	