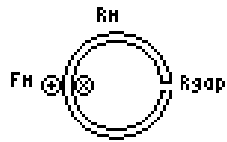
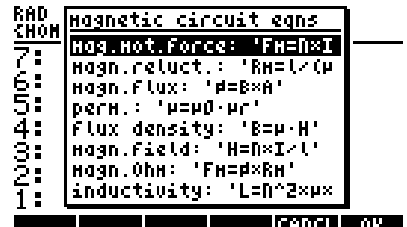

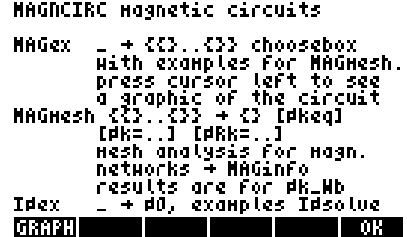
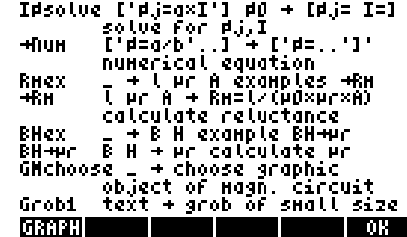
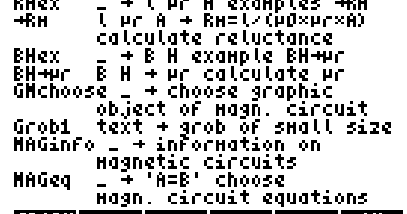



MAGNCIRC

MAGex: examples for magnetic circuits	<pre> circuit examples ex1: { { { 'Fn=500.' } ex2: { { { 'Fn=200.*I' } ex3: { { { 'Fn=50.*I' } ex4: { { { 'Fn=200.*I' } ex5: { { { 'R1=4274648' } ex6: { { { 'Rg1=636619' </pre>	<pre> 7: { { { 'Fn=500.' } 6: { { { 'R1=18562.03' } 5: { { { 'R2=31830.91' } 4: { { { 'R1=18562.03' } 3: { { { 'R2=31830.91' } 2: { { { 'R1=18562.03' } 1: { { { 'R2=31830.91' } </pre>
[OK] shows list		
Cursor left shows the corresponding graph of circuit		
MAGmesh: solves for fluxes in circuit (2.2s)		
next example	<pre> 3: { { { 'Fn=50.*I' } 2: { { { 'Rt=109339.752055' } 1: { { { 'R1=13755.3535825' } </pre>	<pre> 7: { { { 'Fn=50.*I' } 6: { { { 'Rt=109339.752055' } 5: { { { 'R1=13755.3535825' } 4: { { { 'R2=53350.4093931' } 3: { { { 'Rt=109339.752055' } 2: { { { 'R1=13755.3535825' } 1: { { { 'R2=53350.4093931' } </pre>
graph of circuit		
MAGmesh: solutions (5.5s)	<pre> 2: { { { 'Rt=109339.752055' } 1: { { { 'R1=13755.3535825' } </pre>	<pre> 2: { { { 'Rt=109339.752055' } 1: { { { 'R1=13755.3535825' } </pre>
IΦex: examples IΦsolve		
[OK] gives value for Φ		
IΦsolve: solves for I, Φ (2.2s)	<pre> 3: { { { 'Rt=109339.752055' } 2: { { { 'R1=13755.3535825' } 1: { { { 'R2=53350.4093931' } </pre>	<pre> 2: { { { 'Rt=109339.752055' } 1: { { { 'R1=13755.3535825' } </pre>
next example	<pre> 3: { { { 'Fn=200.*I' } 2: { { { 'R1=26188.3802816' } 1: { { { 'R2=8258.92857143' } </pre>	<pre> 7: { { { 'Fn=200.*I' } 6: { { { 'R1=26188.3802816' } 5: { { { 'R2=8258.92857143' } 4: { { { 'R3=20833.3333333' } 3: { { { 'Rg=9347.18394321' } 2: { { { 'R1=26188.3802816' } 1: { { { 'R2=8258.92857143' } </pre>
graph		
MAGmesh: solutions (6s)	<pre> 2: { { { 'R1=26188.3802816' } 1: { { { 'R2=8258.92857143' } </pre>	<pre> 2: { { { 'R1=26188.3802816' } 1: { { { 'R2=8258.92857143' } </pre>
IΦsolve: (2.8s)		
->Num: numerical evaluaton (0.3s)		

MAGex: example with ring	<pre> 7: 6: 5: 4: 3: 2: 1: { { FH=200..I { RH=1591549.43091 { Rg=3978873.57728 } } MAGex MAGme Idex Idsol ->Rm Rhex </pre>	
cursor left shows graph		<pre> 2000 03.70 TRACE Fcn EDIT CANCEL </pre>
MAGmesh: solve circuit (3s)	<pre> 4: { { Rg=3978873.57728 { 679591607 p1=200..I 122 { p1= 24400..I { 679591607 24400..I { PRg= 679591607 24400..I { PRH= 24400..I 679591607 { PRH= .0001 679591607 { PRg= .0001 I=2.7852115041 </pre>	<pre> 3: { p1= 24400..I { 679591607 24400..I { PRg= 679591607 24400..I { PRH= 24400..I 679591607 { PRH= .0001 679591607 { PRg= .0001 I=2.7852115041 </pre>
IΦsolve: solves for I,Φ (1.2s)	<pre> 1: { PRH= .0001 </pre>	<pre> MAGex MAGme Idex Idsol ->Rm Rhex </pre>
Rmex: examples ->Rm	<pre> 9: 8: 7: 6: 5: 4: 3: 2: 1: { { Rm examples { ex1: { l: 70..cm wr: 20 ex2: { l: 80..cm wr: 20 ex3: { l: 1..m wr: 500 ex4: { l: .005 wr: 1 A </pre>	<pre> 4: 3: 2: 1: { { (70..cm) { wr:2000 { A:(150..cm^2) { RH=18568.076694 </pre>
->Rm: calculate reluctance (0.3s)	<pre> 9: 8: 7: 6: 5: 4: 3: 2: 1: { { Rm examples { ex1: { l: 70..cm wr: 20 ex2: { l: 80..cm wr: 20 ex3: { l: 1..m wr: 500 ex4: { l: .005 wr: 1 A </pre>	<pre> 4: 3: 2: 1: { { (70..cm) { wr:2000 { A:(150..cm^2) { RH=18568.076694 </pre>
BH->μr: calculate relative permeability (0.3s)	<pre> 8: 7: 6: 5: 4: 3: 2: 1: { { .25..T { 40..A { m { μr:4973.59197161 </pre>	<pre> 4: 3: 2: 1: { { choose picture { Hagn.square: Graphic { Hagn.ring: Graphic 44 { Hagn.rect: Graphic 25 { FH+: Graphic 18 x 7 { FH+: Graphic 18 x 7 { FH+: Graphic 7 x 18 { FH+: Graphic 7 x 18 { gapt: Graphic 4 x 4 </pre>
GMchoose: choose picture	<pre> 4: 3: 2: 1: { { Graphic 25 x 25 { Graphic 18 x 7 { Graphic 18 x 7 </pre>	<pre> 4: 3: 2: 1: { { Graphic 44 x 37 { Graphic 18 x 7 { Graphic 18 x 7 </pre>
GMchoose: examples	<pre> 4: 3: 2: 1: { { Graphic 25 x 25 { Graphic 18 x 7 { Graphic 18 x 7 </pre>	<pre> 4: 3: 2: 1: { { Graphic 44 x 37 { Graphic 18 x 7 { Graphic 18 x 7 </pre>
GMchoose: examples	<pre> 4: 3: 2: 1: { { Graphic 25 x 35 { Graphic 18 x 7 { Graphic 18 x 7 </pre>	<pre> 4: 3: 2: 1: { { Graphic 7 x 18 { Graphic 7 x 18 { Graphic 4 x 4 { Graphic 4 x 4 </pre>
MAGinfo: information on magnetic circuits	<pre> Mesh analysis magnetic circuits FH..A magnetomotive force (-A) unit A=At=A*turns R..A/Mb magnetic reluctance (-R) l..A/Mb=l..H^2-1 p..Mb magnetic flux (-I) B..Mb/M^2 magnetic flux density A..H^2 area of core l..H length of core H..A/M magnetic field μ..H/M total permeability </pre>	<pre> I..A current in coil N winding number FH=I*N (FH=I*N*dI) R=RH=1/(μ*A) p=B*A (p=I/B*dA) μ=μ0*μr, gap:μr=1 H=I/l B=μ*H FH=p*BH (-0hms law), p=I*N/RH L=N^2/RH=μ*N^2*A/l inductivity </pre>
MAGinfo: information on magnetic circuits	<pre> One draws clockwise magnetic Flux p loops in every mesh. The magnetomotive force FH is positive if it has the same direction as the flux else negative. Input of MAG-circuit: { 'FH1=ui' 'RH=Rk'... } { 'FHj=uj' 'RH=Rl'... } </pre>	<pre> Every inner list corresponds to an loop of the magnetic circuit and contains Hagn, Force FHk and Hagn, reluctance Rk in arbitrary order. Loop Fluxes are named p1,p2... in the order of the lists. We recommend to start from the lower left corner and to proceed clockwise for every mesh. Then it is easy to draw the circuit from the list of lists. </pre>

<p>MAGeq: equations for magnetic circuits</p> <p>some examples</p>	 <p>MAGnetic circuit eqns</p> <p>MAG Hot Force: 'Fm=N*I'</p> <p>Magn.reduct.: 'Rm=l/(μ</p> <p>Magn.Flux: 'φ=B×A'</p> <p>perm.: 'μ=μ0·μr'</p> <p>Flux density: 'B=μ·H'</p> <p>Magn.Field: 'H=N×I·l'</p> <p>Magn.Ohm: 'Fm=φ×Rm'</p> <p>inductivity: 'L=N²×μ×</p> <p>CANCEL OK</p>	 <p>MAGeq Help M PPAR</p> <p>1:</p> <p>Idsolve ['φj=a×I'] φ0 + [φj= I=]</p> <p>solve for φj,I</p> <p>+NUM ['φ=a/b'..1] + ['φ=..1']</p> <p>numerical equation</p> <p>Rhex _ + l μr A examples +Rm</p> <p>+Rm l μr A + Rm=l/(μ0×μr×A)</p> <p>calculate reluctance</p> <p>BHex _ + B H example BH+μr</p> <p>BH+μr B H + μr calculate μr</p> <p>GNchoose _ + choose graphic</p> <p>object of magn. circuit</p> <p>Grob1 text + grob of small size</p> <p>GRAPH</p>
<p>HelpMAG: help</p>	 <p>MAGCIRC Magnetic circuits</p> <p>MAGex _ + {C3..C3} choosebox</p> <p>with examples for MAGmesh.</p> <p>press cursor left to see</p> <p>a graphic of the circuit</p> <p>MAGmesh {C3..C3} + {C} [Mkeq]</p> <p>[Mk=..] [MRk=..]</p> <p>mesh analysis for magn.</p> <p>networks + MAGinfo</p> <p>results are for φk_Nb</p> <p>Idex _ + φ0, examples Idsolve</p> <p>GRAPH</p>	 <p>MAGex _ + l μr A examples +Rm</p> <p>+Rm l μr A + Rm=l/(μ0×μr×A)</p> <p>calculate reluctance</p> <p>BHex _ + B H example BH+μr</p> <p>BH+μr B H + μr calculate μr</p> <p>GNchoose _ + choose graphic</p> <p>object of magn. circuit</p> <p>Grob1 text + grob of small size</p> <p>GRAPH</p>
<p>HelpMAG: help</p>	 <p>MAGex _ + l μr A examples +Rm</p> <p>+Rm l μr A + Rm=l/(μ0×μr×A)</p> <p>calculate reluctance</p> <p>BHex _ + B H example BH+μr</p> <p>BH+μr B H + μr calculate μr</p> <p>GNchoose _ + choose graphic</p> <p>object of magn. circuit</p> <p>Grob1 text + grob of small size</p> <p>MAGinfo _ + information on</p> <p>Magnetic circuits</p> <p>MAGeq _ + 'A=B' choose</p> <p>Magn. circuit equations</p> <p>GRAPH</p>	 <p>MAGex _ + l μr A examples +Rm</p> <p>+Rm l μr A + Rm=l/(μ0×μr×A)</p> <p>calculate reluctance</p> <p>BHex _ + B H example BH+μr</p> <p>BH+μr B H + μr calculate μr</p> <p>GNchoose _ + choose graphic</p> <p>object of magn. circuit</p> <p>Grob1 text + grob of small size</p> <p>MAGinfo _ + information on</p> <p>Magnetic circuits</p> <p>MAGeq _ + 'A=B' choose</p> <p>Magn. circuit equations</p> <p>GRAPH</p>