Tables from

Computation of the flow between a rotating and a stationary disk by S. M. Roberts & J. S. Shipman

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	h''(0)	h'''(0)	η_ℓ	$g(\eta_\ell)$	$g'(\eta_\ell)$	R	Λ	G'(1)
	0.00000000E¯01	0.00000000E¯01	0.000	0.000E¯01	1.000E00	0.000E¯01	3.000E¯01	1.000E00
	¯6.66894164E¯02	2.99995525E¯01	1.000	1.001E00	1.006E00	1.001E00	2.992E¯01	1.004E00
*	¯2.00000000E¯01	6.27000000E¯01	1.455	1.473E00	1.654E00	3.100E00	2.930E¯01	1.037E00
	¯2.25866327E¯01	6.74831119E¯01	1.500	1.522E00	1.065E00	3.424E00	2.913E¯01	1.049E00
	¯5.43743671E¯01	1.19487978E00	2.000	2.174E00	1.397E00	8.697E00	2.528E¯01	1.285E00
*	¯6.00000000E¯01	1.27100000E00	2.065	2.286E00	1.492E00	9.700E00	2.320E¯01	1.348E00
*	¯1.00000000E00	1.70200000E00	2.440	3.234E00	2.653E00	1.920E01	1.630E¯01	2.002E00
	¯1.07036430E00	1.75558781E00	2.500	3.456E00	2.993E00	2.160E01	1.470E¯01	2.165E00
*	¯1.25000000E00	1.84500000E00	2.673	4.210E00	4.296E00	3.010E01	1.040E¯01	2.728E00
*	¯1.38000000E00	1.78200000E00	2.938	5.392E00	6.687E00	4.650E01	6.130E¯02	3.643E00
	¯1.38524190E00	1.74779080E00	3.000	5.608E00	7.166E00	5.047E01	5.557E¯02	3.833E00
*	¯1.35000000E00	1.58900000E00	3.302	6.210E00	8.610E00	6.790E01	4.120E¯02	4.578E00
	¯1.31370080E00	1.51792300E00	3.500	6.318E00	8.898E00	7.739E01	3.803E¯02	4.929E00
	¯1.25028340E00	1.43332190E00	4.000	6.033E00	8.355E00	9.653E01	3.938E¯02	5.539E00
*	¯1.25000000E00	1.43300000E00	4.005	6.039E00	8.360E00	9.690E01	3.900E¯02	5.544E00
	¯1.22688670E00	1.41926350E00	4.500	5.456E00	7.153E00	1.105E02	4.768E¯02	5.900E00
*	¯1.22200000E00	1.41020000E00	4.798	5.042E00	6.350E00	1.161E02	5.550E¯02	6.043E00
	¯1.22044640E00	1.40959170E00	5.000	4.833E00	5.897E00	1.208E02	6.034E¯02	6.100E00
	¯1.21943880E00	1.40939960E00	5.250	4.546E00	5.337E00	1.253E02	6.820E¯02	6.163E00
*	¯1.21900000E00	1.40944000E00	5.487	4.284E00	4.852E00	1.290E02	7.670E¯02	6.214E00
	¯1.21898560E00	1.40944070E00	5.500	4.288E00	4.845E00	1.297E02	7.664E¯02	6.214E00
	¯1.21872770E00	1.40963840E00	6.000	3.882E00	4.091E00	1.398E02	9.353E¯02	6.323E00
*	¯1.21871500E00	1.40970000E00	6.180	3.730E00	3.852E00	1.425E02	1.010E¯01	6.382E00
	¯1.21871640E00	1.40977120E00	6.500	3.628E00	3.627E00	1.533E02	1.071E¯01	6.499E00
	¯1.21873930E00	1.40983500E00	7.000	3.508E00	3.403E00	1.719E02	1.146E¯01	6.790E00
*	¯1.21875610E00	1.40986000E00	7.459	3.500E00	3.368E00	1.947E02	1.220E¯01	7.178E00
	¯1.21875710E00	1.40986140E00	7.500	3.493E00	3.362E00	1.965E02	1.155E¯01	7.218E00
	¯1.21876650E00	1.40987070E00	8.000	3.551E00	3.449E00	2.273E02	1.118E¯01	7.769E00
*	¯1.21876870E00	1.40987200E00	8.176	3.568E00	3.487E00	2.385E02	1.110E¯01	7.990E00
	¯1.21877040E00	1.40987310E00	8.500	3.645E00	3.604E00	2.634E02	1.061E¯01	8.404E00
*	¯1.21877100E00	1.40987320E00	8.553	3.636E00	3.605E00	2.659E02	1.070E¯01	8.480E00
	¯1.21877160E00	1.40987320E00	9.000	3.741E00	3.770E00	3.030E02	1.008E¯01	9.069E00
*	¯1.21877220E00	1.40987310E00	9.337	3.867E00	3.930E00	3.371E02	9.430E¯02	9.489E00
	¯1.21877188E00	1.40987297E00	9.500	3.813E00	3.899E00	3.441E02	9.696E¯02	9.715E00
	¯1.21877188E00	1.40987285E00	9.750	3.837E00	3.944E00	3.648E02	9.574E¯02	1.002E01

Table 1 Principal Branch, One-Cell Solutions. R = Reynolds number, Λ = rescaled radial pressure, gradient = $h'''(0)/g(\eta_\ell)^2$, G'(1) = tangential velocity gradient on the rotating disk = $\eta_\ell g'(\eta_\ell)/g(\eta_\ell)$. Sign convention, if $g(\eta_\ell) < 0$, then $R < 0$ and $G'(1) < 0$.

An * indicates the row of data is taken from Mellor et al. (1968)

	$h''(0)$	$h'''(0)$	η_ℓ	$g(\eta_\ell)$	$g'(\eta_\ell)$	R	Λ	$G'(1)$
*	¯1.21877260E00	1.40987260E00	9.616	¯1.036E01	¯2.021E01	¯9.578E02	1.310E¯02	¯1.876E01
*	¯1.21877930E00	1.40988010E00	8.406	¯1.001E01	¯1.882E01	¯7.073E02	1.410E¯02	¯1.580E01
*	¯1.21872000E00	1.40994600E00	6.792	¯8.500E00	¯1.496E01	¯3.923E02	1.450E¯02	¯1.195E01
	¯1.21862093E00	1.40993263E00	6.500	¯8.489E00	¯1.491E01	¯3.587E02	1.956E¯02	¯1.141E01
	¯1.21816813E00	1.40972493E00	6.000	¯8.768E00	¯1.573E01	¯3.157E02	1.834E¯02	¯1.076E01
*	¯1.21800000E00	1.40962100E00	5.902	¯8.880E00	¯1.603E01	¯3.094E02	1.790E¯02	¯1.065E01
	¯1.21765662E00	1.40938572E00	5.750	¯9.071E00	¯1.660E01	¯2.999E02	1.713E¯02	¯1.052E01
	¯1.21524089E00	1.40721084E00	5.250	¯1.001E01	¯1.932E01	¯2.759E02	1.405E¯02	¯1.014E01
*	¯1.21000000E00	1.40079000E00	4.825	¯1.115E01	¯2.277E01	¯2.595E02	1.260E¯02	¯9.850E00

Table 2 von Karman Branch, One-Cell Solutions. R = Reynolds number, Λ = rescaled radial pressure gradient = $h'''(0)/g(\eta_\ell)^2$, $G'(1)$ = tangential velocity gradient on the rotating disk = $\eta_\ell g'(\eta_\ell)/g(\eta_\ell)$. Sign convention, if $g(\eta_\ell) < 0$, then $R < 0$ and $G'(1) < 0$. An * indicates the row of data is taken from Mellor et al (1968).

	$h''(0)$	$h'''(0)$	η_ℓ	$g(\eta_\ell)$	$g'(\eta_\ell)$	R	Λ	$G'(1)$	No. of Cells
	1.22669272E00	5.18963064E¯01	6.000	¯1.172E01	¯2.256E01	¯4.217E02	3.781E¯03	¯1.155E01	2
	7.05953815E¯01	1.23938123E00	5.750	¯1.346E01	¯2.775E01	¯4.450E02	6.841E¯03	¯1.185E01	2
*	0.00000000E¯01	2.22160000E00	5.510	¯1.632E01	¯3.684E01	¯4.945E02	8.300E¯03	¯1.244E01	2
	¯3.23219522E¯03	2.22025409E00	5.500	¯1.634E01	¯3.709E01	¯4.942E02	8.317E¯03	¯1.249E01	3
	¯1.68197042E¯01	2.44229356E00	5.450	¯1.710E01	¯3.971E01	¯5.079E02	8.352E¯03	¯1.266E01	3
*	¯2.00000000E¯01	2.48720000E00	5.445	¯1.725E01	¯4.018E01	¯5.114E02	8.400E¯03	¯1.268E01	3
	¯6.00000000E¯01	3.00130000E00	5.325	¯1.929E01	¯4.766E01	¯5.471E02	8.100E¯03	¯1.316E01	3
	¯8.73490105E¯01	3.33404627E00	5.250	¯2.084E01	¯5.344E01	¯5.744E02	7.676E¯03	¯1.346E01	3
*	¯1.00000000E00	3.48010000E00	5.215	¯2.162E01	¯5.653E01	¯5.880E02	7.400E¯03	¯1.363E01	3
*	¯1.40000000E00	3.90100000E00	5.102	¯2.435E01	¯6.761E01	¯6.339E02	6.600E¯03	¯1.416E01	3
	¯1.76361292E00	4.21312304E00	5.000	¯2.735E01	¯8.040E01	¯6.838E02	5.632E¯03	¯1.470E01	3
	¯2.09463022E00	4.39595186E00	4.900	¯3.087E01	¯9.643E01	¯7.411E02	4.614E¯03	¯1.531E01	3
*	¯2.53958894E00	4.01660876E00	4.740	¯4.100E01	¯1.478E02	¯9.212E02	2.389E¯03	¯1.709E01	3

Table 3 Three-Cell Solutions. R = Reynolds number, Λ= rescaled radial pressure gradient = $h'''(0)/g(\eta_\ell)^2$, $G'(1)$= tangential velocity on the rotating disk = $\eta_\ell g'(\eta_\ell)/g(\eta_\ell)$. Sign convention, if $g(\eta_\ell) < 0$, then $R < 0$ and $G'(1) < 0$. An * indicates the row of data is taken from Mellor et al (1968).

h''(0)	h'''(0)	η_ℓ	$g(\eta_\ell)$	$g'(\eta_\ell)$	R	Λ	G'(1)	No. of Cells
5.39170204E-01	3.39964697E00	7.200	-1.109E00	-2.749E00	-5.747E01	2.767E00	-1.785E01	1
3.53057061E-01	3.65545694E00	7.100	-1.146E00	-2.895E00	-5.779E01	2.781E00	-1.793E01	1
1.36435108E-01	3.96332259E00	7.000	-1.192E00	-3.071E00	-5.838E01	2.792E00	-1.804E01	1
* 0.00000000E-01	4.16200000E00	6.945	-1.220E00	-3.183E00	-5.890E01	2.790E00	-1.811E01	2
-1.24336946E-01	4.34571902E00	6.900	-1.247E00	-3.289E00	-5.936E01	2.795E00	-1.820E01	2
* -6.00000000E-01	5.07000000E00	6.767	-1.349E00	-3.695E00	-6.170E01	2.790E00	-1.854E01	2
-9.18791069E-01	5.56090284E00	6.700	-1.420E00	-3.982E00	-6.375E01	2.758E00	-1.879E01	2
* -1.00000000E00	5.69500000E00	6.693	-1.435E00	-4.046E00	-6.420E01	2.760E00	-1.887E01	2
-1.25942156E00	6.09330003E00	6.650	-1.495E00	-4.290E00	-6.611E01	2.727E00	-1.908E01	2
* -1.40000000E00	6.31000000E00	6.631	-1.527E00	-4.422E00	-6.720E01	2.710E00	-1.920E01	2
-1.84329936E00	7.00673311E00	6.600	-1.622E00	-4.827E00	-7.066E01	2.663E00	-1.964E01	2
* -2.00000000E00	7.23500000E00	6.582	-1.663E00	-4.993E00	-7.200E01	2.620E00	-1.976E01	2

Table 4 Two-Cell Solutions. R = Reynolds number, Λ = rescaled radial pressure gradient = $h'''(0)/g(\eta_\ell)^2$, G'(1) = tangential velocity gradient on the rotating disk = $\eta_\ell g'(\eta_\ell)/g(\eta_\ell)$. Sign convention, if $g(\eta_\ell) < 0$, then $R < 0$ and $G'(1) < 0$.

An * indicates the row of data is taken from Mellor et al. (1968).

h''(0)	h'''(0)	η_ℓ	$g(\eta_\ell)$	$g'(\eta_\ell)$	R	Λ	G'(1)	No. of Cells
-1.11428295E00	5.90107401E00	9.800	4.307E01	1.591E02	4.136E03	3.181E-03	3.619E01	3
-1.33615063E00	6.23039574E00	9.700	4.471E01	1.682E02	4.207E03	3.117E-03	3.650E01	3
-1.57065891E00	6.57374678E00	9.600	4.651E01	1.785E02	4.286E03	3.039E-03	3.684E01	5
-1.81758684E00	6.92826697E00	9.500	4.848E01	1.899E02	4.375E03	2.948E-03	3.722E01	5
-2.07623702E00	7.28975712E00	9.400	5.063E01	2.027E02	4.474E03	2.844E-03	3.764E01	5
-2.34532897E00	7.65245703E00	9.300	5.299E01	2.171E02	4.583E03	2.725E-03	3.810E01	5
-2.62290493E00	8.00886010E00	9.200	5.556E01	2.331E02	4.703E03	2.594E-03	3.860E01	5
-2.90625794E00	8.34957440E00	9.100	5.837E01	2.510E02	4.834E03	2.450E-03	3.913E01	5
-3.19188473E00	8.66320870E00	9.000	6.143E01	2.710E02	4.976E03	2.296E-03	3.971E01	5
-3.47544834E00	8.93619991E00	8.900	6.476E01	2.934E02	5.130E03	2.131E-03	4.032E01	5
-3.75170325E00	9.15238066E00	8.800	6.839E01	3.184E02	5.296E03	1.957E-03	4.097E01	5
-3.80812727E00	9.18974190E00	8.780	6.916E01	3.239E02	5.332E03	1.921E-03	4.112E01	5
-3.91401207E00	9.24920923E00	8.740	7.074E01	3.350E02	5.403E03	1.849E-03	4.140E01	5
-4.01698787E00	9.29407251E00	8.700	7.237E01	3.467E02	5.477E03	1.775E-03	4.168E01	5
-4.11649208E00	9.32246427E00	8.660	7.406E01	3.590E02	5.554E03	1.700E-03	4.197E01	5
3.66451718E00	-2.34070650E00	8.700	-7.333E00	-1.164E01	-5.551E02	-4.353E-02	-1.381E01	2
3.59939216E00	-2.27508099E00	8.600	-7.373E00	-1.172E01	-5.453E02	-4.185E-02	-1.367E01	2
3.53390834E00	-2.20886175E00	8.500	-7.416E00	-1.180E01	-5.358E02	-4.016E-02	-1.352E01	2

Table 5 Five-Cell Solutions. R = Reynolds number, Λ = rescaled radial pressure gradient = $h'''(0)/g(\eta_\ell)^2$, G'(1) = tangential velocity gradient on the rotating disk = $\eta_\ell\, g'(\eta_\ell)/g(\eta_\ell)$. Sign convention, if $g(\eta_\ell) < 0$, then $R < 0$ and $G'(1) < 0$.

~~An * indicates the row of data is taken from Mellor et al. (1968).~~