Solutions

1. Solution for $K\Delta x^2 = 0.25$;

$X:$	0	0.05	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5
$U:$	0	0.555	0.86	0.914	0.948	0.968	0.98	0.988	0.992	0.994	0.995

3. The numerical solution is shown below. The exact solution differs by about .003

$X:$	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
$U:$	0	−0.045	−0.08	−0.105	−0.12	−0.125	−0.12	−0.105	−0.08	−0.045	0

5. Solution for $s = 0.1$

$x:$	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
$u:$	1	0.4921	0.2661	0.1503	0.087	0.051	0.0299	0.0173	0.0094	0.004	0

Solution for $s = 1$

$x:$	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
$u:$	1	0.6132	0.3773	0.2327	0.1437	0.0886	0.0542	0.0323	0.018	0.008	0

7.

$x \rightarrow$ t	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
0	0	−0.1	−0.2	−0.3	−0.4	−0.5	−0.6	−0.7	−0.8	−0.9	−1
0.1	0	−0.1	−0.2	−0.3	−0.4	−0.5	−0.6	−0.7	−0.8	−0.9	−0.9
0.2	0	−0.1	−0.2	−0.3	−0.4	−0.5	−0.6	−0.7	−0.8	−0.8	−0.8
0.3	0	−0.1	−0.2	−0.3	−0.4	−0.5	−0.6	−0.7	−0.7	−0.7	−0.7
0.4	0	−0.1	−0.2	−0.3	−0.4	−0.5	−0.6	−0.6	−0.6	−0.6	−0.6
0.5	0	−0.1	−0.2	−0.3	−0.4	−0.5	−0.5	−0.5	−0.5	−0.5	−0.5
0.6	0	−0.1	−0.2	−0.3	−0.4	−0.4	−0.4	−0.4	−0.4	−0.4	−0.4
0.7	0	−0.1	−0.2	−0.3	−0.3	−0.3	−0.3	−0.3	−0.3	−0.3	−0.3
0.8	0	−0.1	−0.2	−0.2	−0.2	−0.2	−0.2	−0.2	−0.2	−0.2	−0.2
0.9	0	−0.1	−0.1	−0.1	−0.1	−0.1	−0.1	−0.1	−0.1	−0.1	−0.1
1	0	0	0	0	0	0	0	0	0	0	0
1.1	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
1.2	0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
1.3	0	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
1.4	0	0.1	0.2	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4
1.5	0	0.1	0.2	0.3	0.4	0.5	0.5	0.5	0.5	0.5	0.5
1.6	0	0.1	0.2	0.3	0.4	0.5	0.6	0.6	0.6	0.6	0.6
1.7	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.7	0.7	0.7
1.8	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.8	0.8
1.9	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0.9
2	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1

9. The solution for the left half of the channel section is shown below. The numbers (to three decimals) are identical for the dogleg section, so there is no difference in rigidity at this level of accuracy.

	0	0.25	0.5	0.75	1	1.25	1.5	1.75	2
0	0	0	0	0					
0.25	0	0.051	0.066	0.051	0				
0.5	0	0.075	0.099	0.076	0				
0.75	0	0.087	0.117	0.09	0				
1	0	0.093	0.129	0.105	0	0	0	0	0
1.25	0	0.095	0.139	0.139	0.109	0.099	0.096	0.095	0.095
1.5	0	0.086	0.129	0.14	0.135	0.13	0.128	0.127	0.126
1.75	0	0.059	0.087	0.097	0.098	0.096	0.095	0.095	0.095
2	0	0	0	0	0	0	0	0	0