

$$f(x) = xe^x$$

Richardson Scheme for f'(2)				
h	D ₁	D ₂	D ₃	D ₄
0.4	23.1634642931			
0.2	22.4141606570	22.1643927783		
0.1	22.2287868803	22.1669956214	22.1671691443	
0.05	22.1825648578	22.1671575170	22.1671683100	22.1671682968
Exact	22.1671682968			

Richardson Scheme for f''(2)				
h	D ₁	D ₂	D ₃	D ₄
0.4	30.1515674803			
0.2	29.7042684744	29.5551688058		
0.1	29.5931861000	29.5561586419	29.5562246310	
0.05	29.5654617422	29.5562202895	29.5562243994	29.5562243957
Exact	29.5562243957			

$$I = \int_0^{\pi} \sin x dx = 2$$

Romberg Scheme for I				
m	I _{m,0}	I _{m,1}	I _{m,2}	I _{m,3}
2	1.896118897937			
3	1.974231601946	2.000269169948		
4	1.993570343772	2.000016591048	1.999999752455	
5	1.998393360970	2.000001033369	1.999999996191	2.000000000060