Learn the material: "Trapezoidal and Simpson Rules.pdf". Write a program to do integration of sin(x), from 0 to PI, with Trapezoidal and Simpson Rules. We all know the accurate result is 2.

Please report your results in a table:

Number of Intervals	Trapezoidal Rule Result	Error	Convergence Order	Simpson Rule Result	Error	Convergence Order
N = 20	1.9958859727	0.0041140273		2.0000067844	0.0000067844	
N = 40	1.9989718105	0.0010281895	2.0004451759	2.0000004231	0.0000004231	4.0031827760
N = 80	1.9997429724	0.0002570276	2.0001112541	2.0000000264	0.0000000264	4.0007948420
N = 160	1.9999357444	0.0000642556	2.0000278110	2.0000000017	0.0000000017	4.0001990646
N = 320	1.9999839362	0.0000160638	2.0000069526	2.0000000001	0.0000000001	4.0000481035

Convergence order can be calculated by ln(Error_1/Error_2)/ln(2).

Please zip your code and report and submit to Blackboard.