Task 6

Following are the results of expErdosRenyi and estimErdosRenyi with n ranging from 2 to 19 with probability set to 0.7 and 300 trials for the random sampling method.

1.7000000000000002, 1.437272218578921

4.227, 2.715101003828789

13.955271000000003, 7.3322794042437

57.550715904900024, 30.635468160162674

284.7696018444512, 141.06495285773175

1643.8977926047867, 1178.438275783137

10845.42362739175, 11692.192704512558

80495.29805778884, 168530.2795730663

663822.4806732152, 4063883.1365326685

6021796.535708095, 1.1661991312974769E8

5.959210944049785E7, 5.138597166686587E9

6.38871546400456E8, 3.031183844510527E11

7.376035818835473E9, 1.509285019165963E13

9.124219220138391E10, 1.618775518301474E15

1.2039186131482188E12, 3.3069702828706746E17

1.6878252720824568E13, 7.4966892673338E19

2.5054251089845103E14, 2.1348954808725543E22

3.9256941570708025E15, 1.0946288445301128E25

Even with varying probabilities and n the discrepancy in the results is similar. One can note that the first column (calculated by Robinson-stanley recurrence) which is obviously accurate but the random sampling method is comparable but not precise/correct way to estimate the expected number of acyclic orientations for larger n.