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In[1]:= (*2*)
(*Define quantities.*)
g = RandomGraph[BarabasiAlbertGraphDistribution[300, 2]];
A = AdjacencyMatrix[g];
i = ConstantArray[1, Length@A];

In[4]:= k = A.i;
Equal[k, VertexDegree[g]]

Out[5]= True

In[6]:= n1 =  $\frac{1}{2}$  A.i.i;
Equal[n1, EdgeCount[g]]

Out[7]= True

In[8]:= m = A.A;
Equal[m, Table[Length[Intersection[AdjacencyList[g, i], AdjacencyList[g, j]]],
{i, 300}, {j, 300}]]

Out[9]= True

In[10]:= ntri =  $\frac{1}{6}$  Tr[A.A.A];
Equal[ntri, Length[FindCycle[g, {3}, All]]]

Out[11]= True

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