

Network A

Start at any location in the network above and move following the paths as indicated. At each iteration, “flip a coin” to decide which path to take. For example, if you start at 1, there are three choices to take, you can roll a die and if it is 1 or 2, you move to 2, if it is 3 or 4, you would move to 3 and 5 or 6, then you can move to 4. Use this random moving scheme and perform 20 iterations. Please record the number of times you visit each node.

Starting Node :

|  |  |
| --- | --- |
|  | # of visits |
| Node 1 |  |
| Node 2 |  |
| Node 3 |  |
| Node 4 |  |
| Total Iterations |  |

Starting Node :

|  |  |
| --- | --- |
|  | # of visits |
| Node 1 |  |
| Node 2 |  |
| Node 3 |  |
| Node 4 |  |
| Total Iterations |  |

Starting Node :

|  |  |
| --- | --- |
|  | # of visits |
| Node 1 |  |
| Node 2 |  |
| Node 3 |  |
| Node 4 |  |
| Total Iterations |  |

Starting Node :

|  |  |
| --- | --- |
|  | # of visits |
| Node 1 |  |
| Node 2 |  |
| Node 3 |  |
| Node 4 |  |
| Total Iterations |  |



Network B

Start at any location in the network above and move following the paths as indicated. At each iteration, “flip a coin” to decide which path to take. For example, if you start at 1, there are three choices to take, you can roll a die and if it is 1 or 2, you move to 2, if it is 3 or 4, you would move to 3 and 5 or 6, then you can move to 4. Use this random moving scheme and perform 20 iterations. Please record the number of times you visit each node.

Starting Node :

|  |  |
| --- | --- |
|  | # of visits |
| Node 1 |  |
| Node 2 |  |
| Node 3 |  |
| Node 4 |  |
| Node 5 |  |
| Total Iterations |  |

Starting Node :

|  |  |
| --- | --- |
|  | # of visits |
| Node 1 |  |
| Node 2 |  |
| Node 3 |  |
| Node 4 |  |
| Node 5 |  |
| Total Iterations |  |

Determining Importance:

1. Based on the number of visits to each node in the network, which node would you say is the most important?
2. Using Network A, can you count how many ways you can start and end at node 3 in 3 iterations?
3. Still using A, count how many ways once can start at node 4 and be at node 2 in 4 interations
4. Using Network B, can you count how many ways you can start at node 3 and end at node 4 after 3 iterations?
5. Using Network B, can you count how many ways you can start at node 1 and end at node 5 after 3 iterations?
6. How can you begin to model mathematically, i.e., count the number of times you would visit each node of a network? Describe in words