As always, sit with a partner and work through these together.

### Activity 1: BFT

- Node distance 0 from A:  \( A \)
- Nodes distance 1 from A: 
- Nodes distance 2 from A: 
- Nodes distance 3 from A: 
- Shortest Path from A to E: 

### Activity 2: Fill in the Table

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</tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>[A, C]</td>
<td>2</td>
</tr>
<tr>
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Activity 3: Simulate Dijkstra’s
Decorate each vertex with the (changing) distance from the start vertex A. Put the distance directly above each node. Cross out visited nodes. List the order of nodes that Dijkstra’s algorithm would visit.

Order of visiting nodes: ________________
Shortest Path from A to F: ________________
Length: ________________

Activity 4: Runtime of Dijkstra’s
1. O(________)
2. O(________)
3. O(________)
4. O(________)
5. O(________)
6. O(________)

Activity 5: Dijkstra’s on Graph with Negative Edges
Try to use Dijkstra’s algorithm for the following graph. List any problems that you find while doing so.

Issues:

Activity 6: Runtime of Bellman-Ford:
Describe the runtime of the Bellman-Ford Algorithm based on the following pseudocode:
1. O(________)
2. O(________)
3. O(________)
Overall Runtime: O(_______)

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