8.25. Discussion Questions

1. Draw the graph corresponding to the following adjacency matrix.

	A	B	C	D	E	F
A		7	5			1
B	2			7	3	
C		2				8
D	1				2	4
E	6			5		
F		1			8	

2. Draw the graph corresponding to the following list of edges.

from	to	cost
1	2	10
1	3	15
1	6	5
2	3	7
3	4	7
3	6	10
4	5	7
6	4	5
5	6	13

3. Ignoring the weights, perform a breadth first search on the graph from the previous question.

(KeyTerms.html) (Exercises.html)

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```
1
2
3
```

Activity: 8.25.1 ActiveCode (breadthfirst)

Q-2: 4. What is the Big-O running time of the `buildGraph` function?

- **A. O(n)**
- **B. O(n^2)**
- **C. O(1)**
- **D. O(n^3)**

Check Me Compare me

Activity: 8.25.2 Multiple Choice (question1_1)

Short Answer

Q-3: 5. Derive the Big-O running time for the topological sort algorithm.

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Instructor's Feedback

You have not answered this question yet.

(KeyTerms.html) (Exercises.html)

Activity: 8.25.3 shortanswer (BigO)

Short Answer

Q-4: 6. Derive the Big-O running time for the strongly connected components algorithm.

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You have not answered this question yet.

Activity: 8.25.4 shortanswer (BigOTwo)

7. Show each step in applying Dijkstra's algorithm to the graph shown above.
8. Using Prim's algorithm, find the minimum weight spanning tree for the graph shown above.

Run Load History Show CodeLens

```
1
2
3
```

Activity: 8.25.5 ActiveCode (primsalg)

9. Draw a dependency graph illustrating the steps needed to send an email. Perform a topological sort on your graph.
10. Derive an expression for the base of the exponent used in expressing the running time of the knights tour.

(KeyTerms.html) (Exercises.html)

Short Answer

Q-6: 11. Explain why the general DFS algorithm is not suitable for solving the knights tour problem.

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You have not answered this question yet.

Activity: 8.25.6 shortanswer (DFS)

Q-7: 12. What is the Big-O running time for Prim's minimum spanning tree algorithm?

- **A. O(1)**
- **B. $O(n^3)$**
- **C. O(n)**
- **D. $O(n^2)$**

Check Me Compare me

Activity: 8.25.7 Multiple Choice (question1_2)

You have attempted 1 of 8 activities on this page

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(KeyTerms.html) (Exercises.html)