

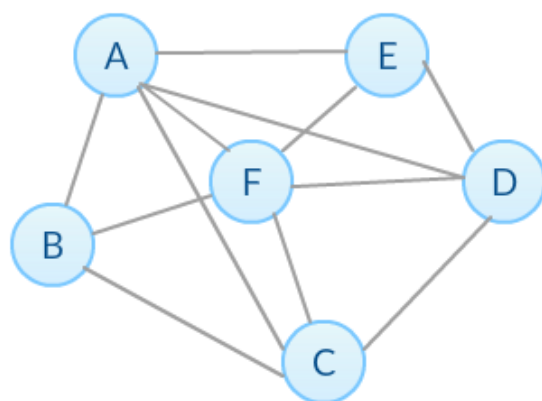
## Module 2 Quiz

Quiz, 10 questions

1  
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1.

Consider the given network. What is the value of node F's local clustering coefficient?



- ☐ 0.5
- ☐ 0.6
- ☒ 0.7
- ☐ 0.8

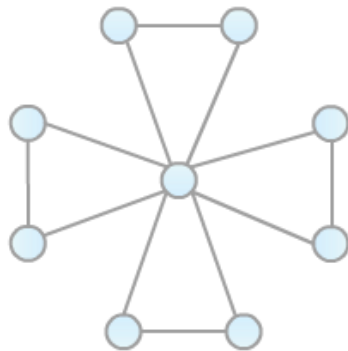
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2.

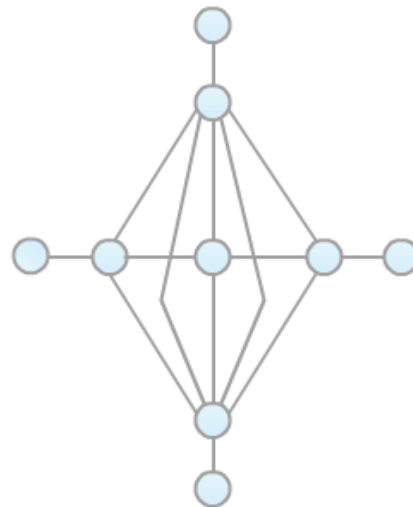
Given the following two networks, which of the following is True?

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Quiz, 10 questions



(A)



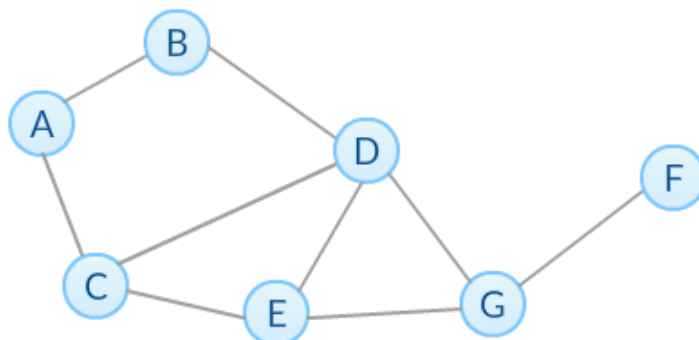
(B)

- ☐ Network (A) has higher average local clustering coefficient and higher transitivity than (B).
- ☒ Network (A) has higher average local clustering coefficient but lower transitivity than (B).
- ☐ Network (A) has lower average local clustering coefficient and lower transitivity than (B).
- ☐ Network (A) has lower average local clustering coefficient but higher transitivity than (B).

1  
point

3.

Consider the network shown below and select all that apply.





The radius of this network is half of its diameter.

## Module 2 Quiz



The deletion of node G will make the network disconnected.

Quiz, 10 questions



If we perform Breadth-First Search (BFS) from node A, the BFS tree we obtain will have a depth of 4.



Node C and D are in the center of the network.



F is the only in the periphery of the network.

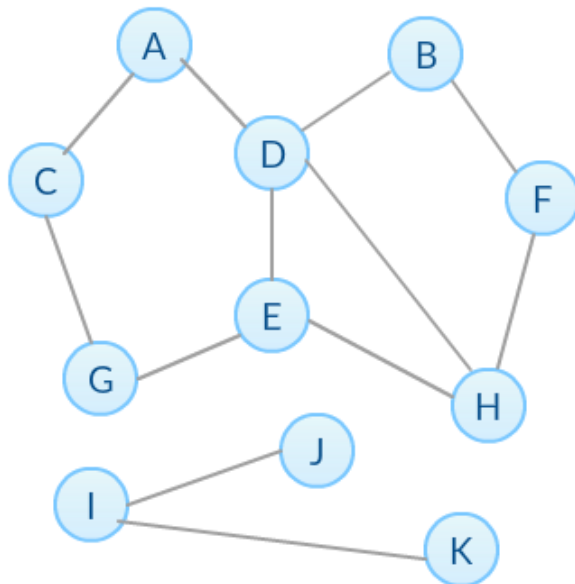


The eccentricity of node B and C are equal.

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4.

Select all that apply for the network below.



It is a disconnected graph with 2 connected components.



If edge (E,G) is removed, the number of connected components will not change.



The local clustering coefficient of node I is higher than node J and K.



We can make the graph connected by adding edge (E,J).

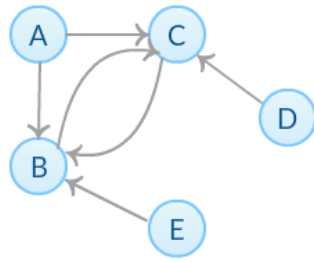
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5.

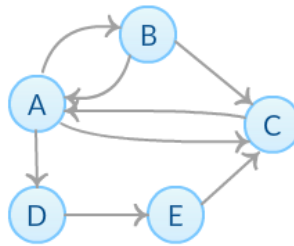
Consider three networks (A), (B) and (C) below and select all that apply.

## Module 2 Quiz

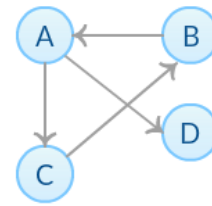
Quiz, 10 questions



(A)



(B)



(C)

- ☒ Only network (B) is a strongly connected graph.
- ☐ We can change network (A) from a weakly connected graph to a strongly connected graph by adding a directed edge from node C to node D.
- ☐ All edges in network (B) are needed for the network to be strongly connected.
- ☒ We only need to add one directed edge in order to change network (C) to a strongly connected graph.

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6.

Which of the following is true about network robustness and connectivity? Select all that apply.

- ☒ The closure of an airport and the cancellation of a flight route are examples of two different kinds of network attacks in the real world.
- ☐ Adding more edges to a network always makes it more robust.
- ☐ A network that has a high average local clustering coefficient always has a high node connectivity.
- ☒ Network robustness measures a network's ability to maintain its connectivity.
- ☒ Adding edges to a network can never make the network less robust.

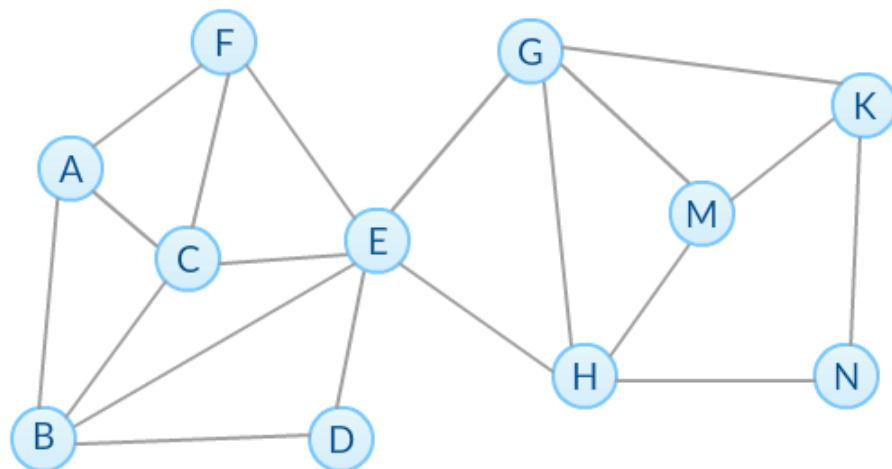
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7.

Consider the network given below.

## Module 2 Quiz

Quiz, 10 questions



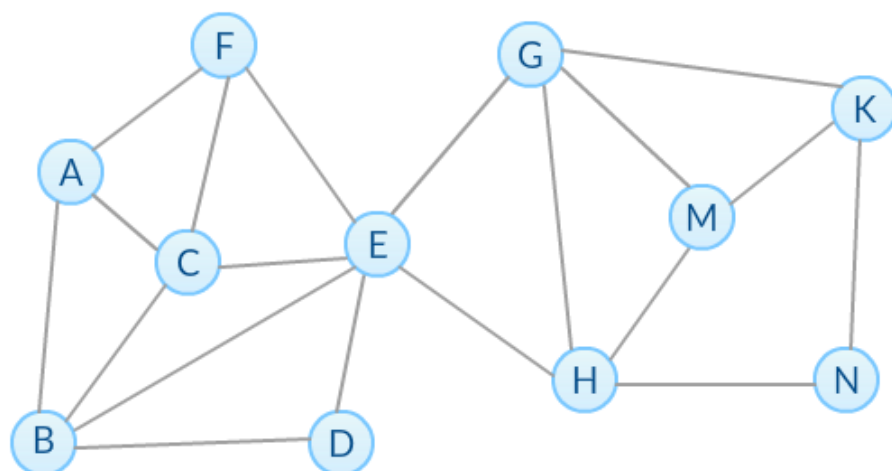
What's the node connectivity of the network?

- ☒ 1
- ☐ 2
- ☐ 3
- ☐ 4

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8.

Consider the network given below.



What is the edge connectivity of the network?

- ☐ 1
- ☒ 2

☐ 3

## Module 2 Quiz ☐ 4

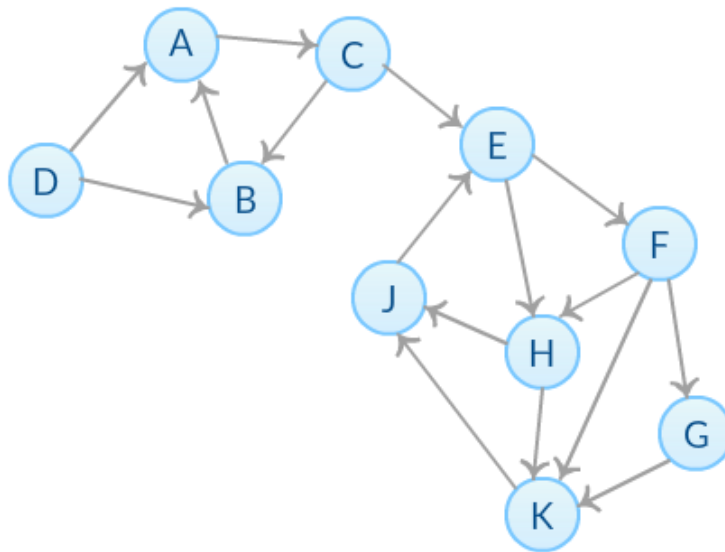
Quiz, 10 questions

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9.

The directed network below shows how information can be transferred between nodes. For example, node A can pass the information to node C directly but not vice-versa. If node C wants to send messages to node A, all data must be forwarded by node B.



What is the total number of simple paths from node D to node K?

☐ 5☐ 6☐ 7☒ 8☐ 9

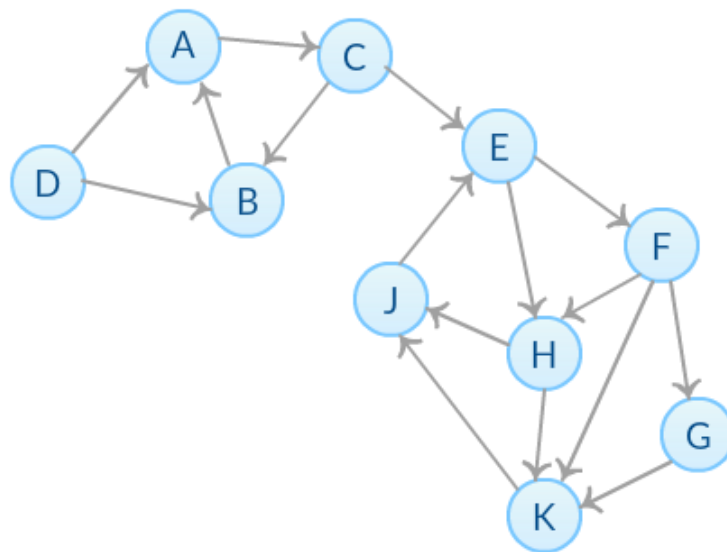
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10.

## Module 2 Quiz

Quiz, 10 questions

The directed network below shows how information can be transferred between nodes. For example, node A can pass the information to node C directly but not vice-versa. If node C wants to send messages to node A, all data must be forwarded by node B.



Suppose we want to block all information channels from node E to node K. Which of the following options achieve this goal? Check all that apply.

- ☐ Removing node H only
- ☐ Removing node G and H
- ☒ Removing node F and H
- ☐ Removing edge (H,K)
- ☒ Removing edges (H,K) and (E,F)
- ☐ Removing edges (H,K) and (F,G)



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