A group of campers take a canoe trip to a chain of lakes in the wilderness. If one lake flows into another lake, then it is possible to travel from either of the two lakes to the other. The lakes flow into each other as follows:

Jackrabbit Lake flows into Fox Lake, Heron Lake, Merganser Lake, Pickerel Lake and Weasel Lake.

Weasel Lake flows into Heron Lake, Jackrabbit Lake and Sand Lake.

Long Lake flows into Merganser Lake and Sand Lake.

Sand Lake flows into Weasel Lake, Long Lake and Merganser Lake.

Heron Lake flows into Fox Lake, Pickerel Lake, Weasel Lake and Merganser Lake.

1. If the canoers travel from Fox Lake to Sand Lake while passing through the fewest number of lakes possible in between, how many different routes could they take?

A. one
B. two
C. three
D. four
E. five

2. What is the maximum number of lakes the canoers could canoe through en route from Jackrabbit Lake to Weasel Lake without returning to the same lake?

A. two
B. three
C. four
D. five
E. six

3. If canoeing between Heron Lake and Weasel Lake is obstructed, then if the canoers are to travel from Sand Lake to Pickerel Lake while traveling through the fewest possible lakes, they must canoe through either

A. Fox Lake or Weasel Lake
B. Heron Lake or Weasel Lake
C. Heron Lake or Merganser Lake
D. Long Lake or Merganser Lake
E. Jackrabbit Lake or Merganser Lake

4. If canoeing between Jackrabbit Lake and Weasel Lake becomes obstructed and the canoers wish to travel from Weasel Lake to Jackrabbit Lake while passing through the fewest lakes, which one of the following is a complete and accurate list of the lakes they could pass through

A. Sand Lake, Pickerel Lake
B. Heron Lake, Merganser Lake
C. Sand Lake, Long Lake
D. Sand Lake, Long Lake, Merganser Lake
E. Heron Lake, Pickerel Lake, Fox Lake

5. What is the minimum number of lakes the canoers must pass through if they are to travel from Long Lake to Fox Lake, excluding their origin and destination lakes?

A. one
B. two
C. three
D. four
E. five

Game 46 – Canoe Trip

1. C
2. D
3. E
4. B
5. B

This game involves a "map"–a very rare type of game but worth practicing. To do this game most effectively, you should draw a map of the elements and their relationship. It should probably look something like a web.

Question 1 is C–they could go from Fox Lake through Jackrabbit and Weasel Lakes, through Heron and Weasel Lakes, or through Jackrabbit and Merganser Lakes. All of these routes lead to Sand Lake with two lakes in between.

On Question 2, the longest route is through Fox, Heron, Merganser, Long, and Sand Lakes. The canoers can't go through Pickerel Lake because it would mean backtracking to Jackrabbit Lake, or being unable to travel through Fox Lake (which would also mean they could travel through five lakes).

For Question 3, the canoers can go through Merganser and Heron Lakes, Merganser and Jackrabbit Lakes, or Weasel and Jackrabbit Lakes. Either way they will travel through one of the two lakes in answer E.

On Question 4, there are multiple ways to go while passing through only two lakes, such as Sand and Merganser Lakes, Heron and Merganser Lakes, Heron and Pickerel Lakes, or Heron and Fox Lakes. However, only one of these options is in the answer choices–the others either do not connect Weasel and Jackrabbit Lakes, or connect them in three lakes instead of two.

Question 5 is B–the canoers can either go through Merganser and Heron Lakes, or through Merganser and Jackrabbit Lakes.