1. If we cross each bridge only once as we go in and out of each landmass, we “use up” two bridges so the number of bridges emerging from each landmass must be even to find a route through the town crossing each bridge only once and finishing where we started. However, each of the four landmasses has an odd number of bridges emerging from it. So the minimum number of bridges to be demolished is $4/2 = 2$, and an example satisfying this is shown below.

2. Yes, by the demolition of the bridge and route given below.

3. Observe that on an odd board there will always be one more square of one colour (say black) than the other, and a knight will always move from a square to a square of the other colour. Hence one can never find a knight’s tour on an odd board since to get to all the squares once you would need to move

$$BWBWBW \ldots WB$$

but there is no way to return from a black square to a black square without visiting an already visited white square.
4. \[(4t - 5w)(x + y)(((2x + 1) + y) \div (3 + 5(w^2))) + (y + (w + z))).\]

5. Each vertex has 3 “lives”. After no moves the total number of lives left is \(3n\). After one move the total number of lives left is \(3(n + 1) - 4\). After 2 moves it is \(3(n + 2) - 8\) and after \(p\) moves it is \(3(n + p) - 4p\). The game must end when there are no lives left, i.e. \(3(n + p) - 4p = 0\) or \(3n = p\). However the last vertex added can’t have had all its lives used up, so the number of moves must be less than \(3n\) i.e. at most \(3n - 1\). 

6. No.