Disclaimer:

All tutors asks differntly, and they have their own freedom to ask any questions. This is just the questions asked by MY tutor. No guarantee that the given answers are 100% correct.

What is the difference between the FEM and FVM?

Ans: FEM uses element based, while FVM takes an average.

What is N and what is B?

Ans: N is the interpolation matrix, B is the derivative of N

How would the calculation change if the Ansatz used is not linear?

Ans:the length between one node the other node would change(not eqidistant), the displacements of each nodes would not be the same

What is K\_ei?

Ans:local stiffness. Stifness of each nodes based on the local coordinates

What is K\_gesamt?

Ans:GLobal stiffness

How do you write (by hand) for Kgesamt?

What does the zeros represent in Kgesamt?(write the full formula)

Ans: strains

How would the F for each element change if a beam (x and y direction displacement) change,

in comparison to this current tension bar(only elongates in 1 direction)?

Ans:Our current question(the given EPool) is given in a trivial case. That's why the F is constant.Let's say you have a beam that has a hole in the middle.

The nodes around the hole would deform differently due to different force value for each node(this would lead to notch effect)

Base your answers on the graph,What would you look at when you are designing this tension bar?

Ans:You look at the point with maximum stress, find out the location, look at the displacement graph at the same location.Use this as information to strengthen that area

Why is it better to look at the displacement of the elements?

Ans:because the displacement is something that changes throughout the beam, while the stress is a material property that is constant