A construction crane is designed such that part of the boom acts as a counterweight. The boom is constructed of uniform material with a linear density of 25 kg/m. The left side of the crane is 10 m long and the right side is 15 m.

a) If the mass at the right end is 300 kg what is the tension in the cable? (T = 6200 N)

b) What is the tension in the cable if there was no left side of the boom? (T = 7400 N)

c) Suppose each cable can support a tension of 12000 N. What is the maximum mass that each crane can support? (Left: 680 kg; Right: 600 kg)