1. Insert scan
2. The shape of the bending moment diagram is the same as the shape of the stress vs. distance graph. They are both parabolic arches, and the maximum stress is located around the centre at 5 metres. The largest internal moment in the beam corresponds to the maximum height of the bending moment diagram. The largest bending stress in the beam corresponds to the maximum height in figure 1. According to Equation 1, the internal moment in a beam is directly proportionate to bending stress in a beam.

(1)

Since the only factor influencing the bending stress is the internal moment, the graphs take the same general shape and the maximum values occur at the same point. Therefore, it can be concluded that the maximum stress in the beam would occur at the same horizontal distance as the maximum internal bending moment. The resulting shape of the graph is due to the fact that the middle axis uses values of z that are around 0, which results in around 0 bending stresses (middle axis is neutral). The plots from the top and bottom of the beam are opposites of each other because they use the same values for each variable in Equation 1 (M, z, and I) on opposite sides on the neutral axis.