Homework Problem H33.B

Given: A circular cross-sectioned shaft is made up of solid shaft components (1) and (2), having diameters of $2d$ and d, respectively. (1) and (2) are joined with the rigid connector B, and (1) is attached to a fixed wall at its left end. A rigid connector is attached to the right end of (2). Torques T and $3T$ act on connectors B and C, as shown.

Find: For this problem:

a) Determine the torque load on each of the components as a result of the applied torques.

b) What is the maximum shear stress in the shaft? At what location(s) does this maximum stress exist?

Leave your answers in terms of T and d.