2.41 A surveyor finds that the length of the line OA is 1500 m and the length of the line OB is 2000 m. (a) Determine the components of the position vector from point A to point B. (b) Determine the components of a unit vector that points from point A toward point B.

2.50 Four coplanar forces act on a beam. The forces \( F_B \) and \( F_C \) are vertical. The vector sum of the forces is zero. The magnitudes \( |F_B| = 10 \text{ kN} \) and \( |F_C| = 5 \text{ kN} \). Determine the magnitudes of \( F_A \) and \( F_D \).

2.54 The cables A, B, and C help support a pillar that forms part of the supports of a structure. The magnitudes of the forces exerted by the cables are equal: \( |F_A| = |F_B| = |F_C| \). The magnitude of the vector sum of the three forces is 200 kN. What is \( |F_A| \)?

2.117 The rope AB exerts a 50-N force \( T \) on collar A. Determine the vector component of \( T \) parallel to the bar CD.

2.118 In Problem 2.117, determine the vector component of \( T \) normal to the bar CD.