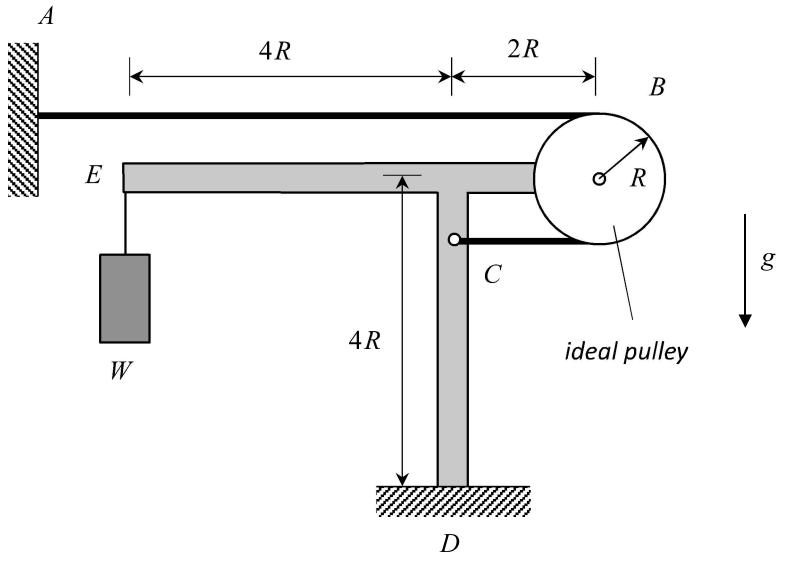
Homework Problem H8.A

Given: A T-shaped structural member is fixed to ground at end D. A cable is attached to point C on the member, is wrapped around an ideal pulley at B, and is connected to ground at end A. The cable carries a known pre-tension of *T*. Both sections of the cable not in contact with the pulley are horizontal. The member supports a block of weight *W* at end E. Assume the weight of the member and pulley to be negligible compared to the applied loads.

Find: Determine the reactions acting on the member at end D. Express your answers in terms of *W*, *T* and *R*.



Homework Problem H8.B

Given: The plate AB has a weight of W. Force F is applied to maintain equilibrium.

Find:

a) Determine the magnitude of F and express it as a vector.
b) Determine the reactions at A and B and express them as vectors.

Use the following parameters in your work: $W = 500$ lb, $d = 5$ ft, $b = 3$ ft and $\theta = 30°$.