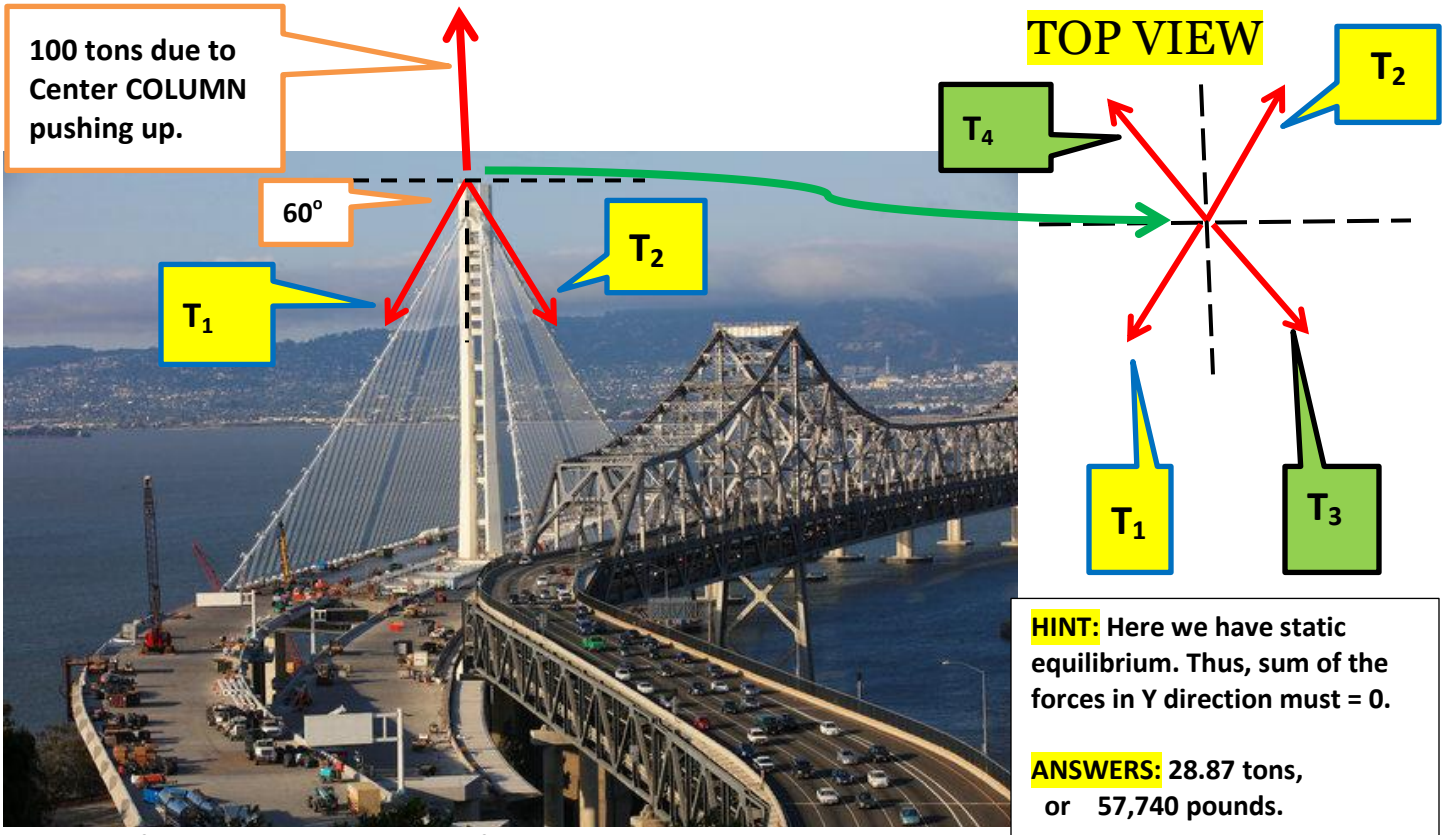
STATICS

Unit 3 Dr. John P. CISE, Professor of Physics, Austin Community College, 1212 Rio Grande St., Austin Tx., 78701 & New York Times August 16,2013 by Norimitsu Onishi

Bolt Problem Won't Delay San Francisco Bridge's Opening



The new, left, and old eastern section of the San Francisco-Oakland Bay Bridge. The new span will open in September as planned.

INTRODUCTION: **The center column provides 100 tons(2000 lb/ton) vertically up supporting the four major cables(T_1,T_2,T_3,T_4) . These four cables support the concrete roadway. The tension in each cable is the same: $T_1 = T_2 = T_3 = T_4$ Above is a side view showing just two cables. In upper right is a top view showing all four cables.**

QUESTIONS: **Find all four tensions? Find tensions in tons and pounds?**

HINT: **Here we have static equilibrium. Thus, sum of the forces in Y direction must = 0.**

ANSWERS: **28.87 tons, or 57,740 pounds.**

SAN FRANCISCO — The new eastern half of the San Francisco-Oakland Bay Bridge will open to traffic the first week of September after all, state transportation officials announced Thursday, reversing an earlier decision to delay the opening for months after defective earthquake safety bolts were found.

Officials said drivers would be able to use the bridge while workers continue with repairs for a few months under a temporary solution that federal authorities endorsed last week.

Members of the Toll Bridge Program Oversight Committee, an umbrella organization overseeing the construction, voted unanimously to connect the new part of the bridge to the existing western half over the long Labor Day weekend. The bridge will close for construction on Aug. 28 and will reopen with the new stretch on Sept. 3.