A workman is unloading the last car (mass $m_c$) from a barge (mass $m_b$) tied to the pier by a short cable. He drives with a constant acceleration from a standing start and attains a speed $v_f$ in the time $t_f$ it takes to reach the end of the barge.

a) Does this put tension in the cable or does it push the barge against the dock?

b) Depending on your answer to a) determine an expression for either the tension in the cable $T(t)$ or the magnitude of the horizontal force of the pier on the barge $F(t)$ during the time $t = 0$ to $t = t_f$. Express your answer in terms of some or all of the quantities $m_c$, $m_b$, $v_f$ and $t_f$. 