

8. [16 points] Chris is standing at the edge of a swimming pool, holding a chain that is partially submerged in the water of the pool, as shown in the figure to the right. The chain is six feet long and weighs 5 lb/ft. When it is in the water, however, the buoyant force of the water makes the effective weight of the chain less—in the water, it weighs only 3 lb/ft. If the chain is initially half submerged in the pool and Chris lifts it straight up until it is entirely out of the water, how much work does Chris do?

