Physics 216 HW 1: Ch 14 to hand in due beginning of class 1/19/2018.

To receive full credit:

- **clearly show your reasoning** (including any necessary calculations),
- **indicate your final answer in an unambiguous way** (such as by circling or underlining it).
- **round your answers appropriately**

1. Explain how a boat can float even though the hull is made of metal (or concrete! http://www.asce.org/concrete-canoe-photo-gallery/) which is much denser than water.
2. Consider an above ground, rectangular swimming pool (12 feet wide by 20 feet long) with a water depth of 4 feet.
   a) What is the pressure at the bottom of the pool?
   b) What is the total force on one of the short sides of the pool due to the water in the pool? Note: this requires some care because of the variation of pressure with depth.
3. The CN Tower in Toronto is among the tallest free-standing structures in the world. Find the dimensions of the CN Tower in Ontario (cite your source!). From the dimensions and assuming the tower is pure concrete (See table 14.3 in the text), by what amount is the bottom 1m layer of concrete compressed?