## Practice Problems – Short Documentation (12 points) For these problems, the Given, Find, and Solution are the only required documentation.

1. A submarine at a depth of 1000 ft has roughly 441 psi of pressure on the outside of the hull. The outer diameter of the hull is roughly 42 ft, and the total length is about 520 ft. The wall thickness is 4 inches. Calculate the hoop stress and longitudinal stress when the submarine is at this depth. Make sure to note if the stresses are in tension or compression.
2. The pressure tank on the South end of GJ is roughly 17 ft long, has a 6.5 ft diameter, and a wall thickness of 0.4375 in. Calculate the hoop stress and longitudinal stress when the air tank has an internal pressure of 130 psi gage. Make sure to note if the stresses are in tension or compression.
3. A 50 lb tank of compressed CO2 is roughly 55 inches tall, 9 inches in diameter, and with a wall thickness of 0.375 in. Calculate the hoop stress and longitudinal stress when the tank is filled with an internal pressure of 1800 psi gage. Make sure to note if the stresses are in tension or compression.