**Solutions to Math Problems from Feb 2018 Newsletter**

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| 1. What will the reading (psi) be on a pressure gage placed at the bottom of a water storage tank that has 50 feet of water in it?    1. 21.6 psi    2. 43.3 psi    3. 50 psi    4. 115.5 psi | |
| 50 feet | ***1 psi = 2.31 ft of water column***  *Water column = 50 ft*  *50 ft X (1 psi/2.31)*  *= 21.6 psi* |
| 1. A water storage tank measures 50 feet in diameter and 50 feet high. The overflow pipe is located 2 feet from the top of the tank. What will be the pressure (psi) be at the bottom of the tank if it is filled to the overflow pipe?    1. 20.7 psi    2. 21.6 psi    3. 43.3 psi    4. 110.8 psi | |
| 2 ft  50 feet  50 feet | ***1 psi = 2.31 ft of water column***  *Water column = 50 ft – 2ft = 48 ft*  *48 ft X (1 psi/2.31)*  *= 20.7 psi* |
| 1. An elevated water storage tank holds 750,000 gallons of water when filled to an elevation of 125 feet. As the water demand in the distribution system increases the tank’s water elevation drops to 105 feet and the capacity is reduced to 430,000 gallons. What will be the drop in pressure (psi) experienced at the base of the tank??    1. 46.2 psi    2. 20.0 psi    3. 8.6 psi    4. 45.4 psi | |
| 105 feet  125 feet | ***1 psi = 2.31 ft of water column***  *Change in water column height = 125 ft – 105ft = 20 ft*  *20 ft X (1 psi/2.31)*  *= 8.65 psi* |
| 1. A hydrant located at the base of a water storage tank is equipped with a pressure gage. The gage reads 20 psi. What is the height (ft) of water in the tank?    1. 8.6 ft    2. 20 ft    3. 43.3 ft    4. 46.2 ft | |
| 20 psi | ***1 psi = 2.31 ft of water column***  *20 psi X (2.31ft/1psi)*  *= 46.2 ft* |
| 1. Two hydrants in the distribution system are equipped with pressure gages. The hydrants are located 1000 feet apart. One hydrant shows a pressure reading of 85 psi and the other hydrant shows a reading of 75 psi. What is the drop (ft) in the hydraulic grade line between the two hydrants?    1. 4.3 ft    2. 10 ft    3. 23.1 ft    4. 432 ft | |
| 85 psi  75 psi  1000 ft | ***1 psi = 2.31 ft of water column***  *Change in pressure = 85 psi – 75 psi = 10 psi*  *10 psi X (2.31 ft/1 psi)*  *= 23.1 ft* |