**36.48 A manometer uses mercury to measure the pressure inside a gas storage tank. One end of the manometer is open to the atmosphere. The height of the column of mercury is $18in$. What is the pressure inside the tank?**

A. $9psia$

B. $18psia$

C. $24psia$

D. $37psia$

Refer to the Commonly Used Equivalents, taking note of the relationship between inches of mercury and psi.

$$1in\,of\,mercury = 0.491psi$$

Since the manometer is open to the atmosphere on one side, the height of the column of mercury measures the gauge pressure only. The absolute pressure must account for atmospheric pressure which is exerted on the open manometer in addition to the mercury. Determine the pressure of the column of mercury and add $14.7psi$ for the atmosphere.

$$P_g = (18in)\,(0.491psi) = 8.84psig$$

$$P_a = 8.84psig + 14.7psi = 23.5psia$$

**Answer C**