

Answer on Question #45431, Physics, Other

At sea level, the atmospheric pressure is 76 cm of Hg. If air pressure falls by 10mm of Hg per 120 m of ascent, what is the height of a hill where the barometer reads 70 cm Hg.

Solution:

From given we have that, for every ascent in height of 120m the pressure falls by 10mm of Hg.

Now, for every mm of Hg drop the altitude increases by

$$\Delta h = \frac{120 \text{ m}}{10 \text{ mm}} = \frac{120 \text{ m}}{1 \text{ cm}} = 120 \text{ m per cm of Hg}$$

If the barometer reads 70 cm of Hg at one place then the level of Hg has fallen by 6 cm to reach to that height thus, for loosing 6cm of Hg the height moved will be

$$h = \Delta h \cdot 6 = 120 \cdot 6 = 720 \text{ m.}$$

Answer: $h = 720 \text{ m.}$