Answer on Question #41303, Physics, Other

Which of these is NOT true about the graph of T^{2} against h in an experiment to determine an inaccessible height H using the simple pendulum?

a. the slope of the graph is negative

b. the intercept on the horizontal axis is positive

c. the value of g is obtainable from the slope of the graph

d. the intercept on the vertical axis is negative

Solution

In an experiment to determine an inaccessible height H using the simple pendulum we use next formula:

$$T^2 = \frac{4\pi^2 H}{g} - \frac{4\pi^2 x}{g}.$$

a. The slope of the graph is negative. **False:** the slope of the graph is $\frac{4\pi^2}{g} > 0$.

b. The intercept on the horizontal axis is positive. **True:** the intercept on the horizontal axis is $x > 0$.

c. The value of g is obtainable from the slope of the graph. **True:** the value of g is obtainable from the slope of the graph $\frac{4\pi^2}{g}$.

d. The intercept on the vertical axis is negative. **True:** the intercept on the vertical axis is $-\frac{4\pi^2 x}{g} < 0$.

Answer: a. the slope of the graph is negative.