

Answer on Question #80922 – Math – Calculus

Question

the period of a compound pendulum is given by $P = 2\pi \sqrt{(\frac{h^2 + k^2}{gh})}$. express k in terms of p, h and g taking π^2 as 20

Solution

$$p = \frac{2}{\pi} \sqrt{\frac{h^2 + k^2}{gh}}$$

$$\frac{\pi^2 p^2}{4} = \frac{h^2 + k^2}{gh}$$

$$k^2 = \frac{\pi^2 p^2}{4} gh - h^2$$

$$k = \sqrt{\frac{\pi^2 p^2}{4} gh - h^2}$$

Answer: $k = \sqrt{\frac{\pi^2 p^2}{4} gh - h^2}$.