

A reactor core is in the form of a rectangular prism of height h with a rectangular base having sides of length a and b . Assuming that the boundary condition is $\Phi = 0$ at the sides of the reactor show, by direct substitution or otherwise, that the solution has the form

$$\Phi = A \cos\left(\frac{\pi x}{a}\right) \cos\left(\frac{\pi y}{b}\right) \cos\left(\frac{\pi z}{h}\right)$$