

11.9. Relativistic corrections become necessary when the expression for the kinetic energy $\frac{1}{2}mv^2$, becomes comparable with mc^2 , where m is the mass of the particle. At what de Broglie wavelength will relativistic corrections become important for an electron?

- (a) $\lambda = 10\text{nm}$
- (b) $\lambda = 10^{-1}\text{nm}$
- (c) $\lambda = 10^{-4}\text{nm}$
- (d) $\lambda = 10^{-6}\text{nm}$

The correct answers are

- c) $\lambda = 10^{-4}\text{nm}$
- d) $\lambda = 10^{-6}\text{nm}$