to be precise...

$$\Delta p_y \Delta y \geq \frac{h}{2\pi}$$
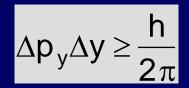
Of course if we try to locate the position of the particle along the x axis to Δx we will not know its x component of momentum better than Δp_x, where

$$\Delta p_x \Delta x \geq \frac{h}{2\pi}$$

and the same for z.

Preflight 23.7

According to the H.U.P., if we know the x-position of a particle, we can not know its:

(1)   y-position   (2)   x-momentum

(3)   y-momentum   (4)   Energy