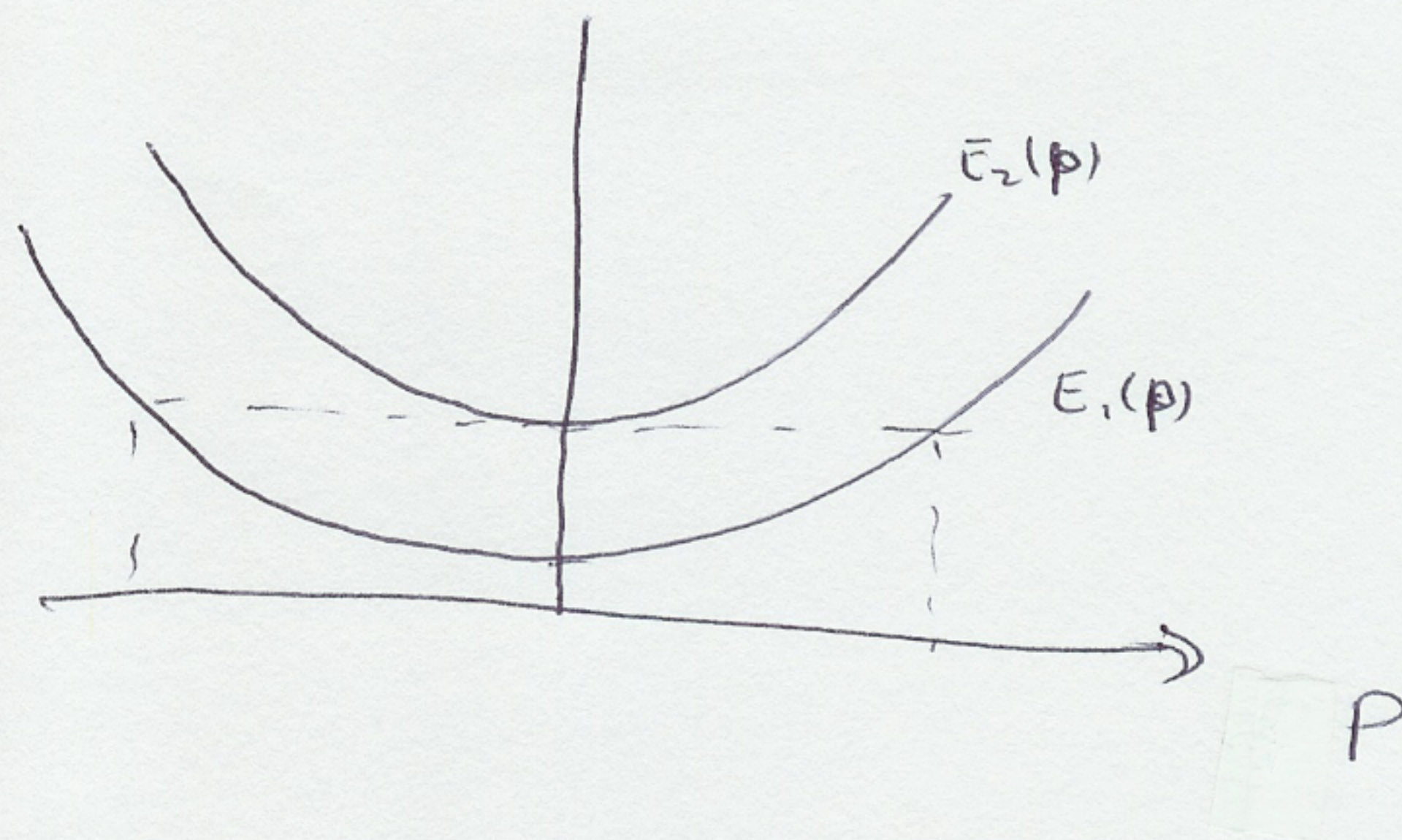


HW 3 :

solution



maximum p satisfies

$$E_1(p) = E_2(0)$$

$$\frac{p^2}{2m} + \frac{\pi^2 \hbar^2}{2m w^2} = \frac{\pi^2 \hbar^2}{2m w^2} \cdot 2^2$$

$\uparrow$ $\uparrow$
 δ_1 δ_2

$$\delta_n = \frac{\pi^2 \hbar^2}{2m w^2} \cdot n^2$$

$$\therefore p^2 + \frac{\pi^2 \hbar^2}{w^2} = 4 \cdot \frac{\pi^2 \hbar^2}{w^2}$$

$$p^2 = 3 \pi^2 \hbar^2 / w^2$$

$$p = \sqrt{3} \pi \hbar / w$$

maximum 1) density

$$= 2 \cdot \frac{2p}{2\pi \hbar} = \frac{2p}{\pi \hbar} = \frac{2\sqrt{3}}{w}$$

$\uparrow$
 spin

11