5-23

(a)

Similar to Exercise 5-21 measuring J_z yields $\pm\hbar$ and 0.

(b)

$$\langle J_x \rangle = 0, \langle {J_x}^2 \rangle = \frac{\hbar^2}{2}, \Delta J_x = \frac{\hbar\sqrt{2}}{2}$$

(c)

$$\langle J_y \rangle = 0, \langle {J_y}^2 \rangle = \frac{\hbar^2}{2}, \Delta J_y = \frac{\hbar\sqrt{2}}{2}$$

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