

\downarrow $23e^-$

(Ar) $4s^2 3d^3$

Hund's
Rule
UP then down.

| | | | | | |
|----------------------|------------|------------|------------|---|---|
| $\uparrow\downarrow$ | \uparrow | \uparrow | \uparrow | — | — |
| $4s$ | $3d$ | | | | |

4 Quantum Numbers - provide a specific "address" for every e^-

n principle energy level Period

l (azimuthal quantum #) → Sublevel

| | | | |
|---|---|---|---|
| s | p | d | f |
| 0 | 1 | 2 | 3 |

m (Magnetic quantum #) → orbital

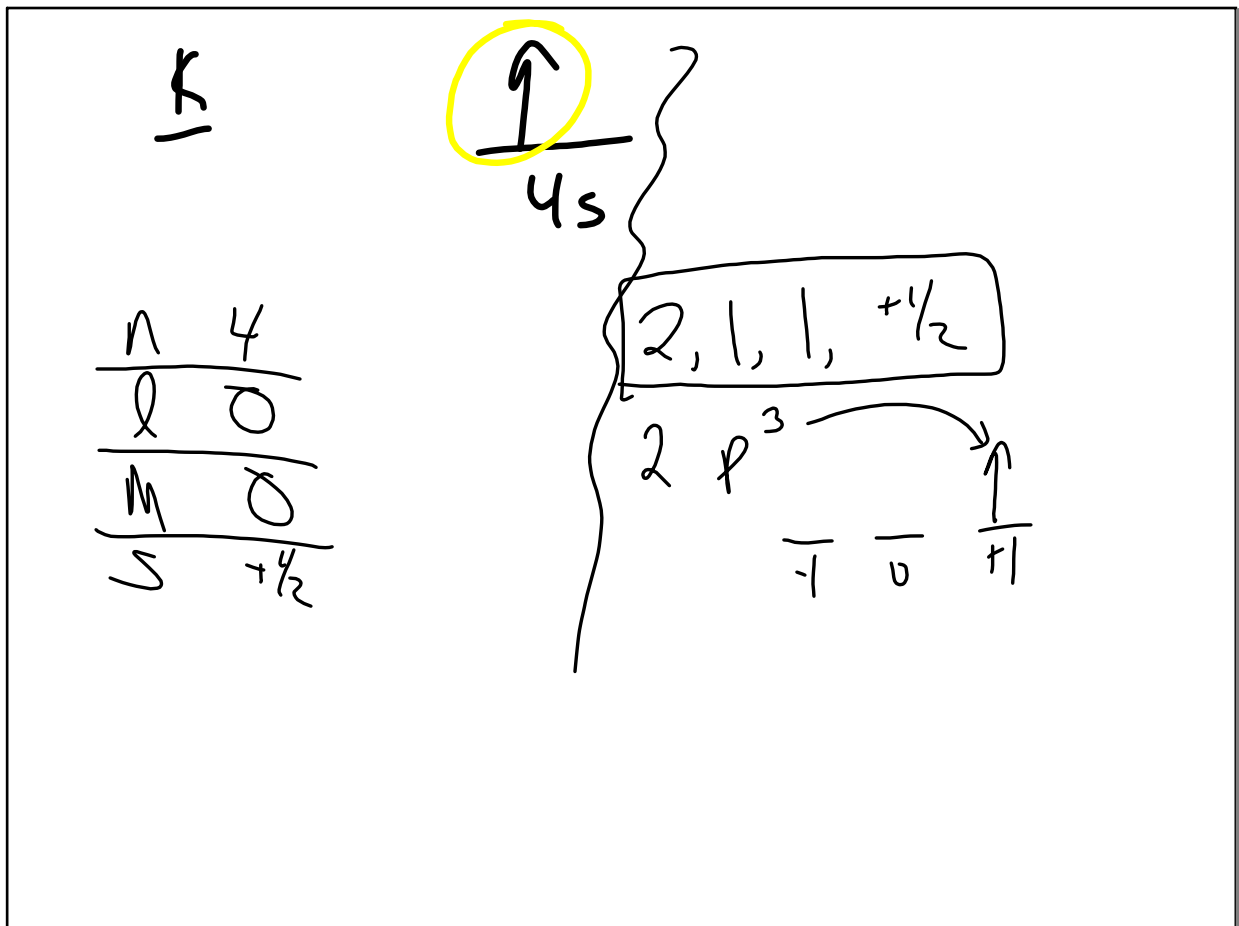
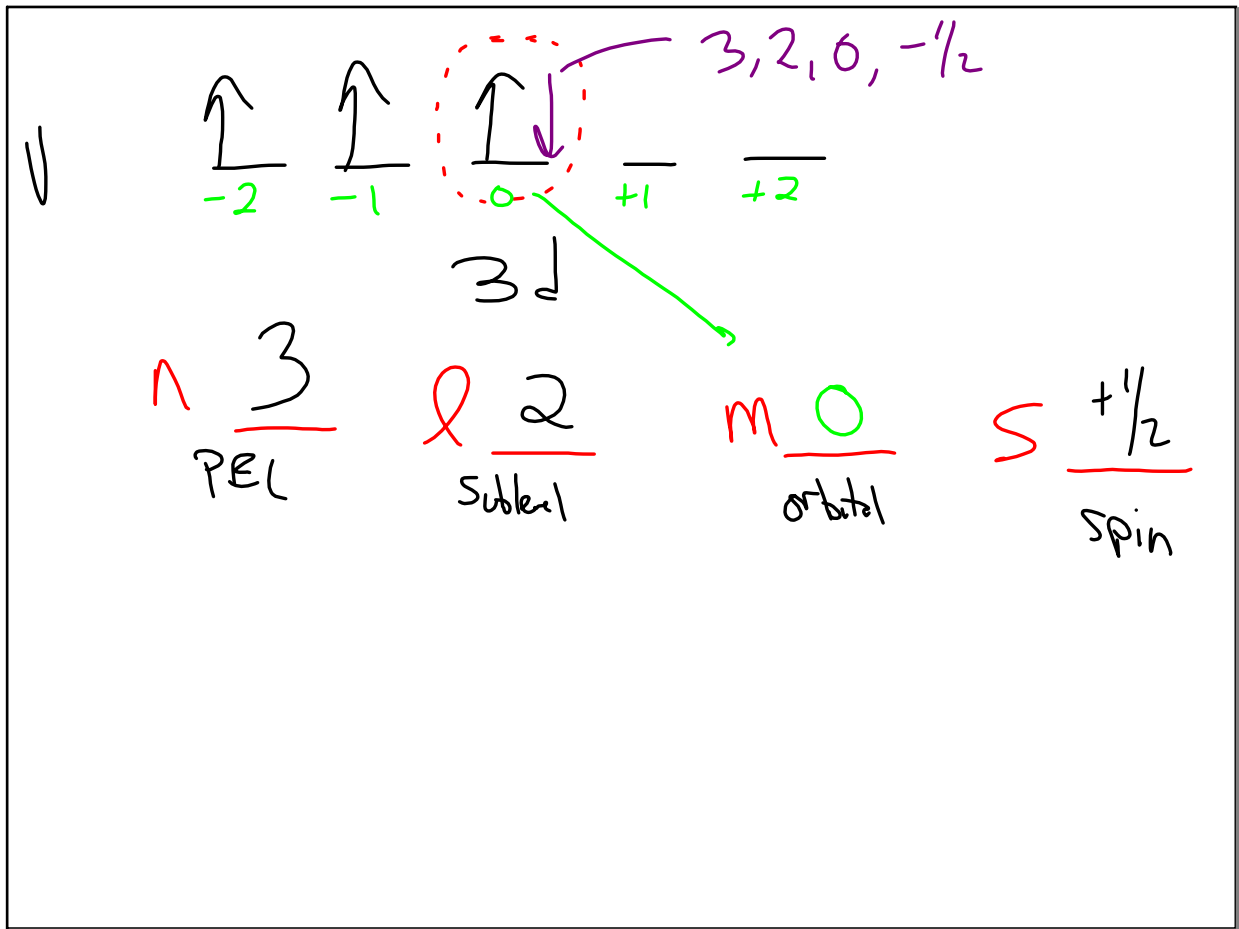
(m_l) range $-l$ to $+l$ @

-1 0 $+1$

s → Spin $+1/2$ or $-1/2$

(m_s)

\uparrow \downarrow



DeBroglie Wavelength

$c = \text{speed of light}$

$$E = hf$$

$$mc^2 = hf$$

$$mv^2 = hf$$

$$\frac{mv^2}{1} = \frac{hf}{\lambda}$$

$$\lambda = \frac{hf}{mv^2}$$

$c = f\lambda$
 $\lambda = \frac{c}{f}$
 $\lambda = \frac{v}{f}$

DeBroglie wavelength. $\lambda = \frac{h}{mv}$ $mv = \text{momentum}$

k_s m v velocity m/sec

PS 6 1-28

Skip 20-23