

Electron Configuration Worksheet

Write the unabbreviated electron configurations of the following elements:

- 1) copper $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^9$
- 2) iodine $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^5$
- 3) potassium $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$
- 4) bismuth $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^{10} 6p^3$
- 5) zirconium $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^2$

Write the abbreviated electron configurations of the following elements:

- 6) iridium $[\text{Xe}] 6s^2 4f^{14} 5d^7$
- 7) chlorine $[\text{Ne}] 3s^2 3p^5$
- 8) nobelium $[\text{Rn}] 7s^2 5f^{14}$
- 9) caesium $[\text{Xe}] 6s^1$
- 10) magnesium $[\text{Ne}] 3s^2$

The following electron configurations belong to which elements:

- 21) $1s^2 2s^2 2p^6 3s^1$ **sodium**
- 22) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^6$ **ruthenium**
- 23) $[\text{Kr}] 5s^2 4d^{10}$ **cadmium**
- 24) $[\text{Xe}] 6s^2 4f^{14} 5d^{10} 6p^2$ **lead**
- 25) $[\text{Rn}] 7s^2 5f^{14} 6d^4$ **seaborgium**

Determine if the following electron configurations are correct:

- 26) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 4d^{10} 4p^6 5s^1$ **no, it should be $3d^{10}$**
- 27) $1s^2 2s^2 2p^6 3s^3$ **no, there can only be 2 electrons in an s-orbital**
- 28) $[\text{Rn}] 7s^2 5f^9 6d^2$ **no, 5f shell must be filled before the 6d shell**
- 29) $[\text{Ar}] 5s^2 4d^{10} 5p^5$ **no, the short-cut should be $[\text{Kr}]$, not $[\text{Ar}]$**
- 30) $[\text{Xe}] 6s^2 4f^{10}$ **yes**