

antwoorden opgaven

|   |                         |    |    |    |
|---|-------------------------|----|----|----|
| 1 |                         | n  | p  | e  |
|   | ${}^7_3\text{Li}$       | 4  | 3  | 3  |
|   | ${}^{11}_5\text{B}$     | 6  | 5  | 5  |
|   | ${}^{16}_8\text{O}$     | 8  | 8  | 8  |
|   | ${}^{36}_{17}\text{Cl}$ | 19 | 17 | 17 |
|   | ${}^{27}_{13}\text{Al}$ | 14 | 13 | 13 |

|   |                              |    |    |    |
|---|------------------------------|----|----|----|
| 2 |                              | n  | p  | e  |
|   | ${}^7_3\text{Li}^+$          | 4  | 3  | 2  |
|   | ${}^{11}_5\text{B}^{3+}$     | 6  | 5  | 2  |
|   | ${}^{16}_8\text{O}^{2-}$     | 8  | 8  | 10 |
|   | ${}^{36}_{17}\text{Cl}^-$    | 19 | 17 | 18 |
|   | ${}^{27}_{13}\text{Al}^{3+}$ | 14 | 13 | 10 |

|   |                         |   |   |    |   |
|---|-------------------------|---|---|----|---|
| 3 |                         | K | L | M  | N |
|   | ${}^9_4\text{Be}$       | 2 | 2 |    |   |
|   | ${}^{12}_6\text{C}$     | 2 | 4 |    |   |
|   | ${}^{35}_{17}\text{Cl}$ | 2 | 8 | 7  |   |
|   | ${}^{24}_{12}\text{Mg}$ | 2 | 8 | 2  |   |
|   | ${}^{65}_{30}\text{Zn}$ | 2 | 8 | 18 | 2 |

|   |                             |                            |                             |                             |                                        |
|---|-----------------------------|----------------------------|-----------------------------|-----------------------------|----------------------------------------|
| 4 | ${}^{23}_{11}\text{Na}$ : 1 | ${}^{31}_{15}\text{P}$ : 5 | ${}^{35}_{17}\text{Cl}$ : 7 | ${}^{80}_{35}\text{Br}$ : 7 | ${}^{40}_{18}\text{Ar}$ : 0 (of 8 ...) |
|---|-----------------------------|----------------------------|-----------------------------|-----------------------------|----------------------------------------|

|   |    |     |      |     |     |      |      |      |      |
|---|----|-----|------|-----|-----|------|------|------|------|
| 5 | H· | Li· | ·Be· | ·P· | ·S· | ·Cl· | ·Ar· | ·Ge· | ·Br· |
|---|----|-----|------|-----|-----|------|------|------|------|

- 6 In de eerste periode wordt de eerste schil gevuld, deze is vol met twee elektronen (Pauli-principe:  $2n^2$  is 2 voor  $n = 1$ ).  
De tweede periode is gevuld met acht elektronen want  $2n^2$  is 8 voor  $n = 2$ .

|   |                         |                     |                         |
|---|-------------------------|---------------------|-------------------------|
| 7 | ${}^{24}_{12}\text{Mg}$ | ${}^{16}_8\text{O}$ | ${}^{35}_{17}\text{Cl}$ |
|---|-------------------------|---------------------|-------------------------|

- 8 a groep 1  
b groep 2  
c groep 17 (7)  
d groep 16 (6)

- 9 a 1,09; 1,05; 1,30; 1,42  
b Hoe groter het atoom des te groter de verhouding neutronen / protonen.

|    |    |        |        |               |
|----|----|--------|--------|---------------|
| 10 | C  | $1s^2$ | $2s^2$ | $2p^2$        |
|    | Ne | $1s^2$ | $2s^2$ | $2p^6$        |
|    | Na | $1s^2$ | $2s^2$ | $2p^6$ $3s^1$ |

Cl  $1s^2 2s^2 2p^6 3s^2 3p^5$   
 Br  $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^5$

- 11 a Groep: 1 periode: 2  
 b Groep: 2 periode: 3  
 c Groep: 15 periode: 3

12  $2p \rightarrow 3s$

13 a 10 b 12

14 C  $1s^2 2s^2 2p^2$   
 Al  $1s^2 2s^2 2p^6 3s^2 3p^1$   
 Cl  $1s^2 2s^2 2p^6 3s^2 3p^5$   
 K  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$   
 Ca  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$