



FINDING THE FORMULA

Answer all the questions below and then check your answers.

1. What is the formula for a compound formed between magnesium (Mg) and chlorine (Cl)?
2. Use the cross over rule to determine the formula for a compound formed between aluminium (Al) and oxygen (O).
3. What is the valency of an element in Group 1 of the periodic table?
b. How does the position of an element in Group 7 affect its valency?
4. Iron is a transition metal; two common compounds of iron are iron (II) oxide and iron (III) oxide. What do the Roman numerals in brackets mean in the names of these two compounds?
5. Define valency.
6. Explain how the valency of elements in Group 2 relates to their position in the periodic table.
7. What is the valency of the sulfate ion (SO_4^{2-})?
8. Work out the formula for ammonium sulfate.
9. Write the formula for hydrochloric acid and sodium hydroxide.

10. Which of the following elements has a valency of 3?

- A) Sodium B) Carbon C) Aluminum D) Oxygen

11. What is the valency of the following ions?

a. Nitrate (NO_3^-) b. Carbonate (CO_3^{2-}) c. Phosphate (PO_4^{3-})

d. Ammonium (NH_4^+)

12. Fill in the gaps to complete the sentences below:

a. Acids contain _____ ions.

b. Alkalis contain _____ ions.

13. Why do elements in the same group of the periodic table exhibit similar chemical properties?

Answers

1. What is the formula for a compound formed between magnesium (Mg) and chlorine (Cl)?

Answer: $MgCl_2$

2. Use the cross over rule to determine the formula for a compound formed between aluminium (Al) and oxygen (O).

Answer: Al_2O_3 .

3. What is the valency of an element in Group 1 of the periodic table?

Answer: 1

- b. How does the position of an element in Group 7 affect its valency?

Answer: Elements in Group 7 have a valency of 1 because they need to gain one electron to achieve a full outer shell.

4. Iron is a transition metal; two common compounds of iron are iron (II) oxide and iron (III) oxide. What do the Roman numerals in brackets mean in the names of these two compounds?

Answer: They are the valencies of iron

5. Define valency.

Answer: Valency is basically the number of bonds an element will make

6. Explain how the valency of elements in Group 2 relates to their position in the periodic table.

Answer: Elements in Group 2 have a valency of 2 because they have two electrons in their outer shell, which they tend to lose to achieve a full outer shell.

7. What is the valency of the sulfate ion (SO_4^{2-})?

Answer: 2

8. Work out the formula for ammonium sulfate.

Answer:

Ammonium ion (NH_4^+) has a valency of 1.

Sulfate ion (SO_4^{2-}) has a valency of 2.

Using the cross over rule, $(\text{NH}_4)_2\text{SO}_4$ is the formula.

9. Write the formula for hydrochloric acid and sodium hydroxide.

Answer: Hydrochloric acid: HCl ; Sodium hydroxide: NaOH

10. Which of the following elements has a valency of 3?

A) Sodium B) Carbon C) Aluminum D) Oxygen

Answer: C) Aluminum

11. What is the valency of the following ions? Answers in blue beside formula

a. Nitrate (NO_3^-) 1 b. Carbonate (CO_3^{2-}) 2 c. Phosphate (PO_4^{3-}) 3

d. Ammonium (NH_4^+) 1

12. Fill in the gaps to complete the sentences below:

a. Acids contain _____ ions.

Answer: hydrogen

b. Alkalis contain _____ ions.

Answer: hydroxide

13. Why do elements in the same group of the periodic table exhibit similar chemical properties?

Answer: Elements in the same group have the same number of valence electrons, which determines their chemical properties.