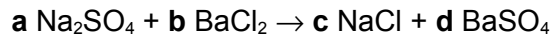
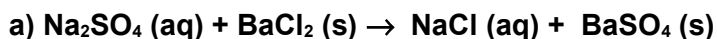


AJUST REACCIONS QUÍMIQUES**Ajusta les reaccions químiques:**

Na: $2a = c$

S: $a = d$

O: $4a = 4d$

Ba: $b = d$

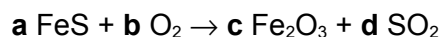
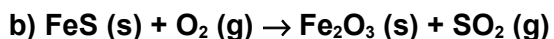
Cl: $2b = c$

Si assignem a d el valor 1: **$d = 1$** , tindrem

$a = d \rightarrow a = 1$

$b = d \rightarrow b = 1$

$2b = c \rightarrow 2 \cdot 1 = c \rightarrow 2 = c \rightarrow c = 2$

L'equació ajustada és: $\text{Na}_2\text{SO}_4 + \text{BaCl}_2 \rightarrow 2 \text{NaCl} + \text{BaSO}_4$ 

Fe: $a = 2c$

S: $a = d$

O: $2b = 3c + 2d$

Si assignem el valor 1 $\rightarrow c = 1$, quedarà

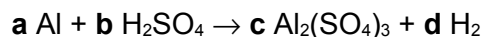
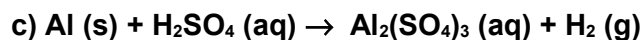
$a = 2 \cdot 1 \rightarrow a = 2$

$a = d \rightarrow 2 = d \rightarrow d = 2$

$2b = 3c + 2d \rightarrow 2b = 3 \cdot 1 + 2 \cdot 2 = 7 \rightarrow b = 7/2$

Per a evitar nombres fraccionaris, multipliquem per dos tots els coeficients, quedarà:

$a = 4 \quad b = 7 \quad c = 2 \quad d = 4$

L'equació ajustada es: $4 \text{FeS} + 7 \text{O}_2 \rightarrow 2 \text{Fe}_2\text{O}_3 + 4 \text{SO}_2$ 

Al: $a = 2c$

H: $2b = 2d$

S: $b = 3c$

O: $4b = 12c$

Si assignem **$d = 1$** , quedarà:

$2b = 2d \rightarrow b = d \rightarrow b = 1$

$b = 3c \rightarrow 1 = 3c \rightarrow 1/3 = c \rightarrow c = 1/3$

$a = 2c \rightarrow a = 2 \cdot 1/3 \rightarrow a = 2/3$

Si multipliquem per tres tots els coeficients per a eliminar fraccions:

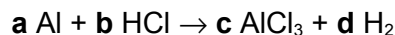
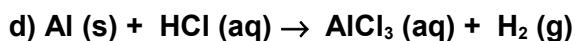
$a = (2/3) \times 3 \rightarrow a = 2$

$$b = 1 \times 3 = 3$$

$$c = (1/3) \times 3 \rightarrow c = 1$$

$$d = 1 \times 3 = 3$$

L'equació ajustada queda: $2 \text{ Al} + 3 \text{ H}_2\text{SO}_4 \rightarrow \text{Al}_2(\text{SO}_4)_3 + 3 \text{ H}_2$



$$\text{Al: } a = c$$

$$\text{H: } b = 2d$$

$$\text{Cl: } b = 3c$$

Si assignem a c el valor 1: **c = 1**, quedarà

$$a = c \rightarrow a = 1$$

$$b = 3c \rightarrow b = 3 \cdot 1 \rightarrow b = 3$$

$$b = 2d \rightarrow 3 = 2d \rightarrow 3 / 2 = d \rightarrow 3/2 = d \rightarrow d = 3/2$$

Si multipliquem tots els coeficients per dos per a eliminar les fraccions:

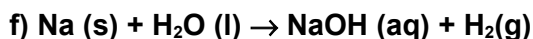
$$a = 1 \times 2 = 2$$

$$b = 3 \times 2 = 6$$

$$c = 1 \times 2 = 2$$

$$d = (3/2) \times 2 = 3$$

L'equació ajustada queda: $2 \text{ Al} + 6 \text{ HCl} \rightarrow 2 \text{ AlCl}_3 + 3 \text{ H}_2$



Per a ajustar la reacció: $a \text{ Na} + b \text{ H}_2\text{O} \rightarrow c \text{ NaOH(aq)} + d \text{ H}_2 \text{ (g)}$

$$\text{Na: } a = c$$

$$\text{H: } 2b = c + 2d$$

$$\text{O: } b = c$$

Si li donem a c el valor 1: **c = 1**

$$a = c \rightarrow a = 1$$

$$b = c \rightarrow b = 1$$

$$\text{Per a calcular d: } 2b = c + 2d \rightarrow 2 \cdot 1 = 1 + 2d \rightarrow 2 = 1 + 2d \rightarrow 2 - 1 = 2d \rightarrow$$

$$1 / 2 = d \rightarrow d = 1/2$$

Multipliquem per dos per a eliminar coeficients fraccionaris:

$$a = 1 \times 2 = 2$$

$$b = 1 \times 2 = 2$$

$$c = 1 \times 2 = 2$$

$$d = (1/2) \times 2 = 1$$

La reacció queda: $2 \text{ Na} + 2 \text{ H}_2\text{O} \rightarrow 2 \text{ NaOH (aq)} + \text{H}_2 \text{ (g)}$

AJUST REACCIONS QUÍMIQUES**Ajusta les reaccions químiques següents:**

1. $\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow \text{H}_2\text{O}(\text{l})$
2. $\text{N}_2(\text{g}) + \text{H}_2(\text{g}) \rightarrow \text{NH}_3(\text{g})$
3. $\text{H}_2\text{O}(\text{l}) + \text{Na}(\text{s}) \rightarrow \text{Na}(\text{OH})(\text{aq}) + \text{H}_2(\text{g})$
4. $\text{KClO}_3(\text{s}) \rightarrow \text{KCl}(\text{s}) + \text{O}_2(\text{g})$
5. $\text{BaO}_2(\text{s}) + \text{HCl}(\text{aq}) \rightarrow \text{BaCl}_2(\text{aq}) + \text{H}_2\text{O}_2(\text{l})$
6. $\text{H}_2\text{SO}_4(\text{aq}) + \text{C}(\text{s}) \rightarrow \text{H}_2\text{O}(\text{l}) + \text{SO}_2(\text{g}) + \text{CO}_2(\text{g})$
7. $\text{SO}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow \text{SO}_3(\text{g})$
8. $\text{NaCl}(\text{s}) \rightarrow \text{Na}(\text{s}) + \text{Cl}_2(\text{g})$
9. $\text{HCl}(\text{aq}) + \text{MnO}_2(\text{s}) \rightarrow \text{MnCl}_2(\text{aq}) + \text{H}_2\text{O}(\text{l}) + \text{Cl}_2(\text{g})$
10. $\text{K}_2\text{CO}_3(\text{s}) + \text{C}(\text{s}) \rightarrow \text{CO}(\text{g}) + \text{K}(\text{s})$
11. $\text{NaNO}_3(\text{aq}) + \text{KCl}(\text{aq}) \rightarrow \text{NaCl}(\text{aq}) + \text{KNO}_3(\text{aq})$
12. $\text{Fe}_2\text{O}_3(\text{s}) + \text{CO}(\text{g}) \rightarrow \text{CO}_2(\text{g}) + \text{Fe}(\text{s})$
13. $\text{Na}_2\text{CO}_3(\text{s}) + \text{H}_2\text{O}(\text{l}) + \text{CO}_2(\text{g}) \rightarrow \text{NaHCO}_3(\text{aq})$
14. $\text{Cr}_2\text{O}_3(\text{s}) + \text{Al}(\text{s}) \rightarrow \text{Al}_2\text{O}_3(\text{s}) + \text{Cr}(\text{s})$
15. $\text{Ag}(\text{s}) + \text{HNO}_3(\text{aq}) \rightarrow \text{NO}(\text{g}) + \text{H}_2\text{O}(\text{l}) + \text{AgNO}_3(\text{aq})$

SOLUCIONS

1. $2 \text{H}_2 + \text{O}_2 \rightarrow 2 \text{H}_2\text{O}$
2. $\text{N}_2 + 3 \text{H}_2 \rightarrow 2 \text{NH}_3$
3. $2 \text{H}_2\text{O} + 2 \text{Na} \rightarrow 2 \text{Na}(\text{OH}) + \text{H}_2$
4. $2 \text{KClO}_3 \rightarrow 2 \text{KCl} + 3 \text{O}_2$
5. $\text{BaO}_2 + 2 \text{HCl} \rightarrow \text{BaCl}_2 + \text{H}_2\text{O}_2$
6. $2 \text{H}_2\text{SO}_4 + \text{C} \rightarrow 2 \text{H}_2\text{O} + 2 \text{SO}_2 + \text{CO}_2$
7. $2 \text{SO}_2 + \text{O}_2 \rightarrow 2 \text{SO}_3$
8. $2 \text{NaCl} \rightarrow 2 \text{Na} + \text{Cl}_2$
9. $4 \text{HCl} + \text{MnO}_2 \rightarrow \text{MnCl}_2 + 2 \text{H}_2\text{O} + \text{Cl}_2$
10. $\text{K}_2\text{CO}_3 + 2 \text{C} \rightarrow 3 \text{CO} + 2 \text{K}$
11. $\text{NaNO}_3 + \text{KCl} \rightarrow \text{NaCl} + \text{KNO}_3$
12. $\text{Fe}_2\text{O}_3 + 3 \text{CO} \rightarrow 3 \text{CO}_2 + 2 \text{Fe}$
13. $\text{Na}_2\text{CO}_3 + \text{H}_2\text{O} + \text{CO}_2 \rightarrow 2 \text{NaHCO}_3$
14. $\text{Cr}_2\text{O}_3 + 2 \text{Al} \rightarrow \text{Al}_2\text{O}_3 + 2 \text{Cr}$
15. $3 \text{Ag} + 4 \text{HNO}_3 \rightarrow \text{NO} + 2 \text{H}_2\text{O} + 3 \text{AgNO}_3$