B5 · Extra practice

Original diploma-style practice | Items 1-2

Extra practice for this lesson. Original questions, not released diploma items. Select one option for multiple choice; other tasks state the required response.

Use the givens and conditions in each prompt. Enter the requested count, coefficient, oxidation number or potential with the stated unit and precision.

B5-D01 · Multiple choice

Which pair of particles may remain in a final balanced equation for a basic solution?

A. H^+ and H_2O
B. OH^- and H_2O
C. H^+ and OH^- in equal amounts
D. Only H^+

Response: _____

B5-D02 · Numerical response

How many chlorine atoms are on each side of $3ClO^- \rightarrow ClO_3^- + 2Cl^-$? Enter an integer.

Response: _____

B5 · Extra practice

Original diploma-style practice | Items 3-4

B5-D03 · Numerical response

Given, in basic solution: the reduction $ClO^- + H_2O + 2e^- \rightarrow Cl^- + 2OH^-$ and the oxidation $Fe(OH)_2 + OH^- \rightarrow Fe(OH)_3 + e^-$. What number must the oxidation half be multiplied by? Enter a whole number.

Response: _____

B5-D04 · Multiple choice

In $2H_2O_2 \rightarrow O_2 + 2H_2O$, the $2H^+$ and $2e^-$ that were in the two halves are not in the final equation. Why?

A. They were destroyed in the reaction
B. They were on both sides in equal amounts, so they cancelled
C. They are never needed in half-reactions
D. They turned into OH^-

Response: _____

B5 · Extra practice

Original diploma-style practice | Items 5-6

B5-D05 · Select all that apply

Select every correct statement about $BrO_3^- + 3H_2O + 6e^- \rightarrow Br^- + 6OH^-$.

A. Oxygen is 6 on each side
B. Charge is −7 on each side
C. It contains H^+
D. The electrons on the left show reduction

Response: _____

B5-D06 · Numerical response

A reduction half takes 6 electrons. The oxidation half is $2I^- \rightarrow I_2 + 2e^-$. What number must the oxidation half be multiplied by? Enter a whole number.

Response: _____

B5 · Extra practice

Original diploma-style practice | Items 7-8

B5-D07 · Numerical response

In $2MnO_4^- + 4H_2O + 6I^- \rightarrow 2MnO_2 + 3I_2 + __OH^-$, what coefficient of OH^- balances the equation? Enter an integer.

Response: _____

B5-D08 · Ordering / ranking

Arrange the steps for combining two given half-reactions for a basic solution.

First to last

1. Add the halves
2. Check atoms, charge and what is left against the condition
3. Multiply every term so the electrons match
4. Cancel what is the same on both sides
5. Compare the electrons taken and given

Response: _____

B5 · Extra practice

Original diploma-style practice | Items 9-10

B5-D09 · Matching

Match each kind of solution to what may remain in the final equation.

Items to match:

1. Acidic
2. Basic
3. Neutral

Targets:

A. H_2O and OH^-

B. H_2O, and H^+ or OH^- only if the reaction makes them

C. H_2O and H^+

Response: _____

B5-D10 · Numerical response

What is the total charge on each side of $3ClO^- \rightarrow ClO_3^- + 2Cl^-$? Enter a signed integer.

Response: _____

B5 · Extra practice

Original diploma-style practice | Items 11-12

B5-D11 · Multiple choice

A student writes “basic” beside $MnO_4^- + 8H^+ + 5e^- \rightarrow Mn^{2+} + 4H_2O$. Which statement is correct?

A. The label makes it a basic half
B. The half still takes in $8H^+$ and is acidic
C. The half is wrong because it has electrons
D. The half is basic because it has water

Response: _____

B5-D12 · Written response

In basic solution Cl_2 becomes ClO^- and Cl^-. Use oxidation numbers to explain why this is disproportionation.

Response: _____