B2 · 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.

B2-D01 · Numerical response

Find the oxidation number of sulfur in SO_4^{2-}. Enter the number with its sign.

Response: _____

B2-D02 · Multiple choice

Which equation gives the oxidation number of nitrogen, x, in NO_2^-?

A. x + 2(-2) = 0
B. 2x + (-2) = -1
C. x + 2(-2) = -1
D. x + (-2) = -2

Response: _____

B2 · Extra practice

Original diploma-style practice | Items 3-4

B2-D03 · Select all that apply

Select every oxidation number that is correct.

A. O in O_2 is 0
B. O in H_2O_2 is -1
C. H in NaH is +1
D. F in OF_2 is -1

Response: _____

B2-D04 · Numerical response

Find the oxidation number of chlorine in ClO_3^-. Enter the number with its sign.

Response: _____

B2 · Extra practice

Original diploma-style practice | Items 5-6

B2-D05 · Matching

Match each formula to the sum of its oxidation numbers. Let x stand for the first element in the formula.

Items to match:

1. NH_3
2. SO_4^{2-}
3. CO_2

Targets:

A. x + 2(-2) = 0

B. x + 3(+1) = 0

C. x + 4(-2) = -2

Response: _____

B2-D06 · Numerical response

For C_4H_{10}, find the average oxidation number of carbon. Use H = +1. Enter the number with its sign, to one decimal place.

Response: _____

B2 · Extra practice

Original diploma-style practice | Items 7-8

B2-D07 · Multiple choice

In $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$, which reactant is the oxidizing agent?

A. CH_4
B. O_2
C. CO_2
D. H_2O

Response: _____

B2-D08 · Multiple choice

Which reaction is a disproportionation?

A. $2H_2 + O_2 \rightarrow 2H_2O$
B. $Zn + Cu^{2+} \rightarrow Zn^{2+} + Cu$
C. $2H_2O_2 \rightarrow 2H_2O + O_2$
D. $KCl(s) \rightarrow K^+(aq) + Cl^-(aq)$

Response: _____

B2 · Extra practice

Original diploma-style practice | Items 9-10

B2-D09 · Numerical response

The oxidation number of a carbon atom changes from -4 to +4. How many electrons does each carbon atom lose? Enter a whole number.

Response: _____

B2-D10 · Ordering / ranking

Put the steps in order for finding an oxidation number in an ion you have not seen before.

First to last

1. Solve for the unknown and check the sum
2. Count the atoms and read the charge of the ion
3. Write the values you know and multiply by the number of atoms
4. Set the sum equal to the charge of the ion

Response: _____

B2 · Extra practice

Original diploma-style practice | Items 11-12

B2-D11 · Multiple choice

For NO_3^- a student writes x - 6 = 0 and gets N = +6. Which one change fixes the mistake?

A. Change O to -1
B. Set the sum equal to -1
C. Change the O subscript to 2
D. Call nitrogen an element by itself

Response: _____

B2-D12 · Select all that apply

For $2H_2O_2 \rightarrow 2H_2O + O_2$, select every true statement.

A. H_2O_2 is both oxidized and reduced
B. Oxygen is -2 in the H_2O product
C. Oxygen is -2 in O_2
D. Oxygen starts at one value. Some goes up and some goes down

Response: _____

B2 · Extra practice

Original diploma-style practice | Items 13-14

B2-D13 · Numerical response

In the ammonium ion, NH_4^+, hydrogen is +1. The charge of the whole ion is +1. What is the oxidation number of nitrogen? Enter a whole number, with a minus sign if it is negative.

Response: _____

B2-D14 · Multiple choice

Which choice gives the charge of the sulfate ion and the oxidation number of the sulfur in it?

A. Ion charge +2; sulfur 6−
B. Ion charge 2−; sulfur +6
C. Ion charge 6+; sulfur −2
D. Ion charge −6; sulfur 2+

Response: _____