



Заполни пропуски в ОВР формулами

Дополнительные задания: назови вещества, укажи степени окисления, определи окислитель и восстановитель, расставь коэффициенты, сделай 10 приседаний, отведай котлету, испей квасу.

1. $\text{Fe}(\text{OH})_3 + \text{Br}_2 + \underline{\hspace{2cm}} \rightarrow \text{K}_2\text{FeO}_4 + \underline{\hspace{2cm}} + \text{H}_2\text{O}$
2. $\text{H}_2\text{O}_2 + \underline{\hspace{2cm}} + \text{NaOH} \rightarrow \text{Na}_2\text{CrO}_4 + \text{NaNO}_3 + \underline{\hspace{2cm}}$
3. $\text{KClO}_4 + \text{Na}_2\text{SO}_3 + \underline{\hspace{2cm}} \rightarrow \underline{\hspace{2cm}} + \text{Cl}_2 + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$
4. $\text{NaNO}_2 + \text{KIO}_3 + \underline{\hspace{2cm}} \rightarrow \text{I}_2 + \text{K}_2\text{SO}_4 + \underline{\hspace{2cm}} + \text{H}_2\text{O}$
5. $\text{KClO}_4 + \underline{\hspace{2cm}} + \text{H}_2\text{SO}_4 \rightarrow \text{I}_2 + \underline{\hspace{2cm}} + \text{KCl} + \text{H}_2\text{O}$
6. $\text{Ca}(\text{ClO})_2 + \text{HCl} \rightarrow \text{CaCl}_2 + \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$
7. $\text{KIO}_3 + \text{KI} + \underline{\hspace{2cm}} \rightarrow \text{I}_2 + \text{K}_2\text{SO}_4 + \underline{\hspace{2cm}}$
8. $\text{FeSO}_4 + \text{KMnO}_4 + \underline{\hspace{2cm}} \rightarrow \underline{\hspace{2cm}} + \text{MnSO}_4 + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$
9. $\text{Cr}_2\text{O}_3 + \underline{\hspace{2cm}} + \text{Na}_2\text{CO}_3 \rightarrow \text{Na}_2\text{CrO}_4 + \text{NaNO}_2 + \underline{\hspace{2cm}}$
10. $\text{SO}_2 + \text{KMnO}_4 + \underline{\hspace{2cm}} \rightarrow \text{MnSO}_4 + \underline{\hspace{2cm}} + \text{H}_2\text{SO}_4$





11. $\text{Cr}_2\text{O}_3 + \text{NaBrO} + \underline{\hspace{1cm}} \rightarrow \text{Na}_2\text{CrO}_4 + \underline{\hspace{1cm}} + \text{CO}_2$
12. $\text{Cr}_2(\text{SO}_4)_3 + \text{Cl}_2 + \underline{\hspace{1cm}} \rightarrow \text{K}_2\text{CrO}_4 + \text{KCl} + \underline{\hspace{1cm}} + \text{H}_2\text{O}$
13. $\text{CrCl}_3 + \text{Cl}_2 + \underline{\hspace{1cm}} \rightarrow \text{K}_2\text{CrO}_4 + \underline{\hspace{1cm}} + \text{H}_2\text{O}$
14. $\text{K}_2\text{SO}_3 + \underline{\hspace{1cm}} + \text{H}_2\text{O} \rightarrow \underline{\hspace{1cm}} + \text{MnO}_2 + \text{KOH}$
15. $\underline{\hspace{1cm}} + \text{CrCl}_2 \rightarrow \text{Cr}(\text{NO}_3)_3 + \underline{\hspace{1cm}} + \text{NO}_2 + \text{H}_2\text{O}$
16. $\text{Cr}_2(\text{SO}_4)_3 + \text{H}_2\text{O}_2 + \underline{\hspace{1cm}} \rightarrow \text{Na}_2\text{CrO}_4 + \text{Na}_2\text{SO}_4 + \underline{\hspace{1cm}}$
17. $\text{P} + \text{HNO}_3(\text{конц.}) \rightarrow \text{H}_3\text{PO}_4 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$
18. $\text{KCrO}_2 + \underline{\hspace{1cm}} + \text{KOH} \rightarrow \underline{\hspace{1cm}} + \text{KCl} + \text{H}_2\text{O}$
19. $\text{NaHS} + \text{MnO}_2 + \underline{\hspace{1cm}} \rightarrow \underline{\hspace{1cm}} + \text{S} + \text{NaNO}_3 + \text{H}_2\text{O}$
20. $\text{K}_2\text{MnO}_4 + \underline{\hspace{1cm}} \rightarrow \text{MnBr}_2 + \text{Br}_2 + \underline{\hspace{1cm}} + \text{H}_2\text{O}$





21. $\text{FeSO}_4 + \text{KClO}_3 + \underline{\hspace{1cm}} \rightarrow \underline{\hspace{1cm}} + \text{KCl} + \text{H}_2\text{O}$
22. $\text{Mg} + \text{KMnO}_4 + \underline{\hspace{1cm}} \rightarrow \underline{\hspace{1cm}} + \text{MgSO}_4 + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$
23. $\text{MnO} + \text{KClO}_3 + \underline{\hspace{1cm}} \rightarrow \text{K}_2\text{MnO}_4 + \underline{\hspace{1cm}} + \text{H}_2\text{O}$
24. $\text{H}_2\text{S} + \text{KMnO}_4 + \underline{\hspace{1cm}} \rightarrow \underline{\hspace{1cm}} + \text{MnSO}_4 + \text{S} + \underline{\hspace{1cm}}$
25. $\text{Na}_2\text{SO}_3 + \underline{\hspace{1cm}} + \text{H}_2\text{SO}_4 \rightarrow \underline{\hspace{1cm}} + \text{MnSO}_4 + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$
26. $\text{MnO}_2 + \text{KCl} + \underline{\hspace{1cm}} \rightarrow \underline{\hspace{1cm}} + \text{Cl}_2 + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$
27. $\text{ZnS} + \underline{\hspace{1cm}} \rightarrow \text{ZnSO}_4 + \text{NO}_2 + \underline{\hspace{1cm}}$
28. $\text{NaNO}_2 + \text{CrO}_3 + \underline{\hspace{1cm}} \rightarrow \underline{\hspace{1cm}} + \text{Cr}_2(\text{SO}_4)_3 + \text{H}_2\text{O}$
29. $\text{CrO}_3 + \underline{\hspace{1cm}} + \text{H}_2\text{SO}_4 \rightarrow \text{Br}_2 + \underline{\hspace{1cm}} + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$
30. $\text{Mg} + \text{Na}_2\text{SO}_3 + \underline{\hspace{1cm}} \rightarrow \underline{\hspace{1cm}} + \text{H}_2\text{S} + \text{NaCl} + \text{H}_2\text{O}$

CrO

основный



Cr₂O₃

амфотерный



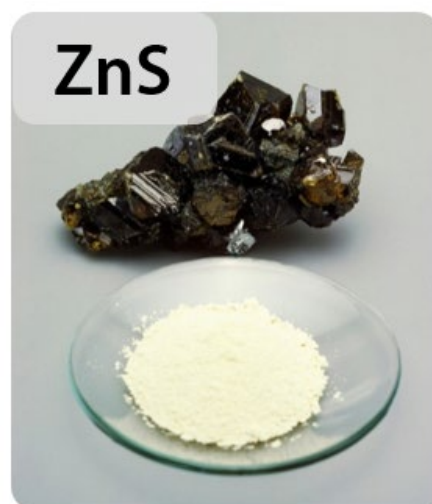
CrO₃

кислотный





31. $\text{Na}_2\text{SO}_3 + \text{KMnO}_4 + \underline{\hspace{1cm}} \rightarrow \underline{\hspace{1cm}} + \text{MnO}_2 + \text{KOH}$
32. $\text{Cl}_2 + \text{I}_2 + \underline{\hspace{1cm}} \rightarrow \text{HIO}_3 + \underline{\hspace{1cm}}$
33. $\text{H}_2\text{O}_2 + \text{HIO}_3 \rightarrow \text{I}_2 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$
34. $\text{Ca}(\text{HS})_2 + \text{HNO}_3(\text{конц.}) \rightarrow \underline{\hspace{1cm}} + \text{H}_2\text{SO}_4 + \text{NO}_2 + \underline{\hspace{1cm}}$
35. $\text{K}_2\text{Cr}_2\text{O}_7 + \text{Na}_2\text{SO}_3 + \underline{\hspace{1cm}} \rightarrow \text{Cr}(\text{OH})_3 + \underline{\hspace{1cm}} + \text{KOH}$
36. $\text{Zn} + \text{KNO}_3 + \underline{\hspace{1cm}} \rightarrow \text{NH}_3 + \text{K}_2\text{ZnO}_2 + \underline{\hspace{1cm}}$
37. $\text{Al} + \text{K}_2\text{Cr}_2\text{O}_7 + \underline{\hspace{1cm}} \rightarrow \underline{\hspace{1cm}} + \text{Cr}_2(\text{SO}_4)_3 + \text{K}_2\text{SO}_4 + \underline{\hspace{1cm}}$
38. $\text{KMnO}_4 + \text{H}_2\text{C}_2\text{O}_4 + \underline{\hspace{1cm}} \rightarrow \text{CO}_2 + \underline{\hspace{1cm}} + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$
39. $\text{KNO}_2 + \text{K}_2\text{Cr}_2\text{O}_7 + \underline{\hspace{1cm}} \rightarrow \underline{\hspace{1cm}} + \text{Cr}(\text{NO}_3)_3 + \text{H}_2\text{O}$
40. $\text{NaCrO}_2 + \underline{\hspace{1cm}} + \text{NaOH} \rightarrow \underline{\hspace{1cm}} + \text{NaBr} + \text{H}_2\text{O}$



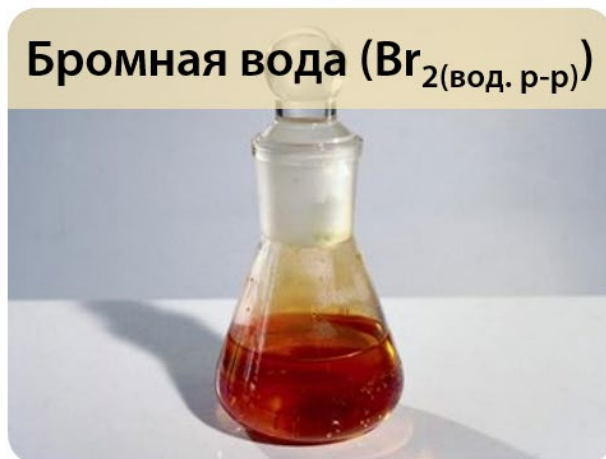


41. $\text{Cr}_2\text{O}_3 + \text{KBrO}_3 + \underline{\hspace{1cm}} \rightarrow \text{Na}_2\text{CrO}_4 + \underline{\hspace{1cm}} + \text{CO}_2$
42. $\underline{\hspace{1cm}} + \text{KMnO}_4 \rightarrow \text{N}_2 + \text{MnO}_2 + \text{KOH} + \underline{\hspace{1cm}}$
43. $\text{CaI}_2 + \text{H}_2\text{SO}_4 \rightarrow \underline{\hspace{1cm}} + \text{H}_2\text{S} + \text{I}_2 + \underline{\hspace{1cm}}$
44. $\text{FeSO}_4 + \text{NaClO} + \underline{\hspace{1cm}} \rightarrow \text{Fe}_2(\text{SO}_4)_3 + \underline{\hspace{1cm}} + \text{H}_2\text{O}$
45. $\text{Na}_2\text{S} + \text{HNO}_3(\text{конц.}) \rightarrow \text{Na}_2\text{SO}_4 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$
46. $\text{Mn}(\text{OH})_2 + \text{Cl}_2 + \underline{\hspace{1cm}} \rightarrow \text{MnO}_2 + \text{KCl} + \underline{\hspace{1cm}}$
47. $\text{KClO}_3 + \underline{\hspace{1cm}} + \text{H}_2\text{SO}_4 \rightarrow \text{I}_2 + \underline{\hspace{1cm}} + \text{KCl} + \text{H}_2\text{O}$
48. $\text{K}_2\text{MnO}_4 + \text{HCl} \rightarrow \text{MnCl}_2 + \text{Cl}_2 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$
49. $\text{MnO}_2 + \text{KClO}_3 + \underline{\hspace{1cm}} \rightarrow \text{K}_2\text{MnO}_4 + \underline{\hspace{1cm}} + \text{H}_2\text{O}$
50. $\text{I}_2 + \underline{\hspace{1cm}} \rightarrow \text{KI} + \text{KIO}_3 + \underline{\hspace{1cm}}$

Бром (Br_2)



Бромная вода ($\text{Br}_{2(\text{вод. р-р})}$)





Ответы

1. $\text{Fe}(\text{OH})_3 + \text{Br}_2 + \mathbf{KOH} \rightarrow \text{K}_2\text{FeO}_4 + \mathbf{KBr} + \text{H}_2\text{O}$
2. $\text{H}_2\text{O}_2 + \mathbf{Cr}(\text{NO}_3)_3 + \text{NaOH} \rightarrow \text{Na}_2\text{CrO}_4 + \text{NaNO}_3 + \mathbf{H}_2\text{O}$
3. $\text{KClO}_4 + \text{Na}_2\text{SO}_3 + \mathbf{H}_2\text{SO}_4 \rightarrow \mathbf{Na}_2\text{SO}_4 + \text{Cl}_2 + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$
4. $\text{NaNO}_2 + \text{KIO}_3 + \mathbf{H}_2\text{SO}_4 \rightarrow \text{I}_2 + \text{K}_2\text{SO}_4 + \mathbf{NaNO}_3 + \text{H}_2\text{O}$
5. $\text{KClO}_4 + \mathbf{KI} + \text{H}_2\text{SO}_4 \rightarrow \text{I}_2 + \mathbf{K}_2\text{SO}_4 + \text{KCl} + \text{H}_2\text{O}$
6. $\text{Ca}(\text{ClO})_2 + \text{HCl} \rightarrow \text{CaCl}_2 + \mathbf{Cl}_2 + \mathbf{H}_2\text{O}$
7. $\text{KIO}_3 + \text{KI} + \mathbf{H}_2\text{SO}_4 \rightarrow \text{I}_2 + \text{K}_2\text{SO}_4 + \mathbf{H}_2\text{O}$
8. $\text{FeSO}_4 + \text{KMnO}_4 + \mathbf{H}_2\text{SO}_4 \rightarrow \mathbf{Fe}_2(\text{SO}_4)_3 + \text{MnSO}_4 + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$
9. $\text{Cr}_2\text{O}_3 + \mathbf{NaNO}_3 + \text{Na}_2\text{CO}_3 \rightarrow \text{Na}_2\text{CrO}_4 + \text{NaNO}_2 + \mathbf{CO}_2$
10. $\text{SO}_2 + \text{KMnO}_4 + \mathbf{H}_2\text{O} \rightarrow \text{MnSO}_4 + \mathbf{K}_2\text{SO}_4 + \text{H}_2\text{SO}_4$
11. $\text{Cr}_2\text{O}_3 + \text{NaBrO} + \mathbf{Na}_2\text{CO}_3 \rightarrow \text{Na}_2\text{CrO}_4 + \mathbf{NaBr} + \text{CO}_2$
12. $\text{Cr}_2(\text{SO}_4)_3 + \text{Cl}_2 + \mathbf{KOH} \rightarrow \text{K}_2\text{CrO}_4 + \text{KCl} + \mathbf{K}_2\text{SO}_4 + \text{H}_2\text{O}$
13. $\text{CrCl}_3 + \text{Cl}_2 + \mathbf{KOH} \rightarrow \text{K}_2\text{CrO}_4 + \mathbf{KCl} + \text{H}_2\text{O}$
14. $\text{K}_2\text{SO}_3 + \mathbf{KMnO}_4 + \text{H}_2\text{O} \rightarrow \mathbf{K}_2\text{SO}_4 + \text{MnO}_2 + \text{KOH}$
15. $\mathbf{HNO}_3(\text{конц.}) + \text{CrCl}_2 \rightarrow \text{Cr}(\text{NO}_3)_3 + \mathbf{HCl} + \text{NO}_2 + \text{H}_2\text{O}$
16. $\text{Cr}_2(\text{SO}_4)_3 + \text{H}_2\text{O}_2 + \mathbf{NaOH} \rightarrow \text{Na}_2\text{CrO}_4 + \text{Na}_2\text{SO}_4 + \mathbf{H}_2\text{O}$
17. $\text{P} + \text{HNO}_3(\text{конц.}) \rightarrow \text{H}_3\text{PO}_4 + \mathbf{NO}_2 + \mathbf{H}_2\text{O}$
18. $\text{KCrO}_2 + \text{Cl}_2 + \mathbf{KOH} \rightarrow \text{K}_2\text{CrO}_4 + \mathbf{KCl} + \text{H}_2\text{O}$
19. $\text{NaHS} + \text{MnO}_2 + \mathbf{HNO}_3 \rightarrow \mathbf{Mn}(\text{NO}_3)_2 + \text{S} + \text{NaNO}_3 + \text{H}_2\text{O}$
20. $\text{K}_2\text{MnO}_4 + \mathbf{HBr} \rightarrow \text{MnBr}_2 + \text{Br}_2 + \mathbf{KBr} + \text{H}_2\text{O}$
21. $\text{FeSO}_4 + \text{KClO}_3 + \mathbf{H}_2\text{SO}_4 \rightarrow \mathbf{Fe}_2(\text{SO}_4)_3 + \text{KCl} + \text{H}_2\text{O}$
22. $\text{Mg} + \text{KMnO}_4 + \mathbf{H}_2\text{SO}_4 \rightarrow \mathbf{MnSO}_4 + \text{MgSO}_4 + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$
23. $\text{MnO} + \text{KClO}_3 + \mathbf{KOH} \rightarrow \text{K}_2\text{MnO}_4 + \mathbf{KCl} + \text{H}_2\text{O}$
24. $\text{H}_2\text{S} + \text{KMnO}_4 + \mathbf{H}_2\text{SO}_4 \rightarrow \mathbf{K}_2\text{SO}_4 + \text{MnSO}_4 + \text{S} + \mathbf{H}_2\text{O}$



25. $\text{Na}_2\text{SO}_3 + \text{KMnO}_4 + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + \text{MnSO}_4 + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$
26. $\text{MnO}_2 + \text{KCl} + \text{H}_2\text{SO}_4 \rightarrow \text{MnSO}_4 + \text{Cl}_2 + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$
27. $\text{ZnS} + \text{HNO}_3(\text{конц.}) \rightarrow \text{ZnSO}_4 + \text{NO}_2 + \text{H}_2\text{O}$
28. $\text{NaNO}_2 + \text{CrO}_3 + \text{H}_2\text{SO}_4 \rightarrow \text{NaNO}_3 + \text{Cr}_2(\text{SO}_4)_3 + \text{H}_2\text{O}$
29. $\text{CrO}_3 + \text{KBr} + \text{H}_2\text{SO}_4 \rightarrow \text{Br}_2 + \text{Cr}_2(\text{SO}_4)_3 + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$
30. $\text{Mg} + \text{Na}_2\text{SO}_3 + \text{HCl} \rightarrow \text{MgCl}_2 + \text{H}_2\text{S} + \text{NaCl} + \text{H}_2\text{O}$
31. $\text{Na}_2\text{SO}_3 + \text{KMnO}_4 + \text{H}_2\text{O} \rightarrow \text{Na}_2\text{SO}_4 + \text{MnO}_2 + \text{KOH}$
32. $\text{Cl}_2 + \text{I}_2 + \text{H}_2\text{O} \rightarrow \text{HIO}_3 + \text{HCl}$
33. $\text{H}_2\text{O}_2 + \text{HIO}_3 \rightarrow \text{I}_2 + \text{O}_2 + \text{H}_2\text{O}$
34. $\text{Ca}(\text{HS})_2 + \text{HNO}_3(\text{конц.}) \rightarrow \text{CaSO}_4 + \text{H}_2\text{SO}_4 + \text{NO}_2 + \text{H}_2\text{O}$
35. $\text{K}_2\text{Cr}_2\text{O}_7 + \text{Na}_2\text{SO}_3 + \text{H}_2\text{O} \rightarrow \text{Cr}(\text{OH})_3 + \text{Na}_2\text{SO}_4 + \text{KOH}$
36. $\text{Zn} + \text{KNO}_3 + \text{KOH} \rightarrow \text{NH}_3 + \text{K}_2\text{ZnO}_2 + \text{H}_2\text{O}$
37. $\text{Al} + \text{K}_2\text{Cr}_2\text{O}_7 + \text{H}_2\text{SO}_4 \rightarrow \text{Al}_2(\text{SO}_4)_3 + \text{Cr}_2(\text{SO}_4)_3 + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$
38. $\text{KMnO}_4 + \text{H}_2\text{C}_2\text{O}_4 + \text{H}_2\text{SO}_4 \rightarrow \text{CO}_2 + \text{MnSO}_4 + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$
39. $\text{KNO}_2 + \text{K}_2\text{Cr}_2\text{O}_7 + \text{HNO}_3 \rightarrow \text{KNO}_3 + \text{Cr}(\text{NO}_3)_3 + \text{H}_2\text{O}$
40. $\text{NaCrO}_2 + \text{Br}_2 + \text{NaOH} \rightarrow \text{Na}_2\text{CrO}_4 + \text{NaBr} + \text{H}_2\text{O}$
41. $\text{Cr}_2\text{O}_3 + \text{KBrO}_3 + \text{Na}_2\text{CO}_3 \rightarrow \text{Na}_2\text{CrO}_4 + \text{KBr} + \text{CO}_2$
42. $\text{NH}_3 + \text{KMnO}_4 \rightarrow \text{N}_2 + \text{MnO}_2 + \text{KOH} + \text{H}_2\text{O}$
43. $\text{CaI}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{CaSO}_4 + \text{H}_2\text{S} + \text{I}_2 + \text{H}_2\text{O}$
44. $\text{FeSO}_4 + \text{NaClO} + \text{H}_2\text{SO}_4 \rightarrow \text{Fe}_2(\text{SO}_4)_3 + \text{NaCl} + \text{H}_2\text{O}$
45. $\text{Na}_2\text{S} + \text{HNO}_3(\text{конц.}) \rightarrow \text{Na}_2\text{SO}_4 + \text{NO}_2 + \text{H}_2\text{O}$
46. $\text{Mn}(\text{OH})_2 + \text{Cl}_2 + \text{KOH} \rightarrow \text{MnO}_2 + \text{KCl} + \text{H}_2\text{O}$
47. $\text{KClO}_3 + \text{KI} + \text{H}_2\text{SO}_4 \rightarrow \text{I}_2 + \text{K}_2\text{SO}_4 + \text{KCl} + \text{H}_2\text{O}$
48. $\text{K}_2\text{MnO}_4 + \text{HCl} \rightarrow \text{MnCl}_2 + \text{Cl}_2 + \text{KCl} + \text{H}_2\text{O}$
49. $\text{MnO}_2 + \text{KClO}_3 + \text{KOH} \rightarrow \text{K}_2\text{MnO}_4 + \text{KCl} + \text{H}_2\text{O}$
50. $\text{I}_2 + \text{KOH} \rightarrow \text{KI} + \text{KIO}_3 + \text{H}_2\text{O}$