



BALANCE THE GIVEN CHEMICAL EQUATIONS

Worksheet - 25

1. $\text{___ KMnO}_4 + 3 \text{ NH}_3 = 3 \text{ KNO}_3 + \text{___ MnO}_2 + 5 \text{ KOH} + 2 \text{ H}_2\text{O}$
2. $\text{K}_2\text{Cr}_2\text{O}_7 + \text{___ H}_2\text{SO}_4 + 6 \text{ NaI} = 3 \text{ Na}_2\text{SO}_4 + \text{K}_2\text{SO}_4 + \text{___ I}_2 + \text{Cr}_2(\text{SO}_4)_3 + 7 \text{ H}_2\text{O}$
3. $\text{Fe}_2(\text{SO}_4)_3 + \text{___ KOH} = \text{___ K}_2\text{SO}_4 + 2 \text{ Fe}(\text{OH})_3$
4. $3 \text{ MgSO}_4 + \text{___ FeCl}_3 = \text{Mg}_3(\text{Cl}_3)_2 + \text{Fe}_2(\text{SO}_4)_3$
5. $\text{___ CH}_3(\text{CH}_2)_2\text{CH}_3 + 13 \text{ O}_2 = \text{___ CO}_2 + 10 \text{ H}_2\text{O}$
6. $\text{___ H}_2\text{SO}_4 + \text{K}_2\text{Cr}_2\text{O}_7 + 6 \text{ NaI} = 3 \text{ I}_2 + \text{Cr}_2(\text{SO}_4)_3 + \text{___ H}_2\text{O} + 3 \text{ Na}_2\text{SO}_4 + \text{K}_2\text{SO}_4$
7. $\text{Hg} + \text{___ H}_2\text{SO}_4 = \text{HgSO}_4 + \text{___ H}_2\text{O} + \text{SO}_2$
8. $\text{___ NH}_3 + \text{H}_2\text{SO}_4 = (\text{NH}_4)_2\text{SO}_4$
9. $\text{___ KOH} + \text{H}_3\text{PO}_4 = \text{K}_3\text{PO}_4 + \text{___ H}_2\text{O}$
10. $\text{Cr}_2(\text{SO}_4)_3 + \text{___ (NH}_4)_2\text{CO}_3 = \text{Cr}_2(\text{CO}_3)_3 + \text{___ (NH}_4)_2\text{SO}_4$
11. $48 \text{ H}^{(+)} + \text{___ Cr}_2\text{O}_7^{(-2)} + 17 \text{ C}_2\text{H}_5\text{OH} = \text{___ Cr}_3^{(+)} + 34 \text{ CO}_2 + 75 \text{ H}_2\text{O}$
12. $2 \text{ K}_3\text{PO}_4 + \text{___ Ca}(\text{NO}_3)_2 = \text{Ca}_3(\text{PO}_4)_2 + \text{___ KNO}_3$
13. $16 \text{ H}^{(+)} + \text{___ Cr}_2\text{O}_7^{(-2)} + \text{C}_2\text{H}_5\text{OH} = 4 \text{ Cr}^{(+3)} + \text{___ CO}_2 + 11 \text{ H}_2\text{O}$
14. $\text{___ (PPh}_3)_2\text{CuBH}_4 = \text{___ Ph}_3\text{PBH}_3 + 2 \text{ Cu} + 2 \text{ Ph}_3\text{P} + \text{H}_2$
15. $\text{Li}_2\text{CO}_3(\text{aq}) + \text{Cu}(\text{NO}_3)_2(\text{aq}) = \text{___ LiNO}_3(\text{aq}) + \text{CuCO}_3(\text{s})$
16. $4 \text{ K}_2\text{Cr}_2\text{O}_7 + 3 \text{ H}_2\text{S} + \text{___ H}_2\text{SO}_4 = 4 \text{ Cr}_2(\text{SO}_4)_3 + \text{___ H}_2\text{O} + 4 \text{ K}_2\text{SO}_4$
17. $3 \text{ As}_2\text{S}_3 + 28 \text{ HNO}_3 + \text{___ H}_2\text{O} = 9 \text{ H}_2\text{SO}_4 + \text{___ H}_3\text{AsO}_4 + 28 \text{ NO}$
18. $\text{___ NaHCO}_3 = \text{Na}_2\text{CO}_3 + \text{CO}_2 + \text{H}_2\text{O}$
19. $\text{Pb}(\text{NO}_3)_2 + \text{___ KI} = 2 \text{ KNO}_3 + \text{PbI}_2$
20. $\text{K}_2\text{CrO}_4 + \text{Pb}(\text{NO}_3)_2 = \text{___ KNO}_3 + \text{PbCrO}_4$



ANSWERS

1. $8 \text{KMnO}_4 + 3 \text{NH}_3 = 3 \text{KNO}_3 + 8 \text{MnO}_2 + 5 \text{KOH} + 2 \text{H}_2\text{O}$
2. $\text{K}_2\text{Cr}_2\text{O}_7 + 7 \text{H}_2\text{SO}_4 + 6 \text{NaI} = 3 \text{Na}_2\text{SO}_4 + \text{K}_2\text{SO}_4 + 3 \text{I}_2 + \text{Cr}_2(\text{SO}_4)_3 + 7 \text{H}_2\text{O}$
3. $\text{Fe}_2(\text{SO}_4)_3 + 6 \text{KOH} = 3 \text{K}_2\text{SO}_4 + 2 \text{Fe}(\text{OH})_3$
4. $3 \text{MgSO}_4 + \text{FeCl}_3 = \text{Mg}_3(\text{Cl}_3)_2 + \text{Fe}_2(\text{SO}_4)_3$
5. $2 \text{CH}_3(\text{CH}_2)_2\text{CH}_3 + 13 \text{O}_2 = 8 \text{CO}_2 + 10 \text{H}_2\text{O}$
6. $7 \text{H}_2\text{SO}_4 + \text{K}_2\text{Cr}_2\text{O}_7 + 6 \text{NaI} = 3 \text{I}_2 + \text{Cr}_2(\text{SO}_4)_3 + 7 \text{H}_2\text{O} + 3 \text{Na}_2\text{SO}_4 + \text{K}_2\text{SO}_4$
7. $\text{Hg} + 2 \text{H}_2\text{SO}_4 = \text{HgSO}_4 + 2 \text{H}_2\text{O} + \text{SO}_2$
8. $2 \text{NH}_3 + \text{H}_2\text{SO}_4 = (\text{NH}_4)_2\text{SO}_4$
9. $3 \text{KOH} + \text{H}_3\text{PO}_4 = \text{K}_3\text{PO}_4 + 3 \text{H}_2\text{O}$
10. $\text{Cr}_2(\text{SO}_4)_3 + 3 (\text{NH}_4)_2\text{CO}_3 = \text{Cr}_2(\text{CO}_3)_3 + 3 (\text{NH}_4)_2\text{SO}_4$
11. $48 \text{H}^{(+)} + 18 \text{Cr}_2\text{O}_7^{(-2)} + 17 \text{C}_2\text{H}_5\text{OH} = 12 \text{Cr}_3^{(+)} + 34 \text{CO}_2 + 75 \text{H}_2\text{O}$
12. $2 \text{K}_3\text{PO}_4 + 3 \text{Ca}(\text{NO}_3)_2 = \text{Ca}_3(\text{PO}_4)_2 + 6 \text{KNO}_3$
13. $16 \text{H}^{(+)} + 2 \text{Cr}_2\text{O}_7^{(-2)} + \text{C}_2\text{H}_5\text{OH} = 4 \text{Cr}^{(+3)} + 2 \text{CO}_2 + 11 \text{H}_2\text{O}$
14. $2 (\text{PPh}_3)_2\text{CuBH}_4 = 2 \text{Ph}_3\text{PBH}_3 + 2 \text{Cu} + 2 \text{Ph}_3\text{P} + \text{H}_2$
15. $\text{Li}_2\text{CO}_3(\text{aq}) + \text{Cu}(\text{NO}_3)_2(\text{aq}) = 2 \text{LiNO}_3(\text{aq}) + \text{CuCO}_3(\text{s})$
16. $4 \text{K}_2\text{Cr}_2\text{O}_7 + 3 \text{H}_2\text{S} + 13 \text{H}_2\text{SO}_4 = 4 \text{Cr}_2(\text{SO}_4)_3 + 16 \text{H}_2\text{O} + 4 \text{K}_2\text{SO}_4$
17. $3 \text{As}_2\text{S}_3 + 28 \text{HNO}_3 + 4 \text{H}_2\text{O} = 9 \text{H}_2\text{SO}_4 + 6 \text{H}_3\text{AsO}_4 + 28 \text{NO}$
18. $2 \text{NaHCO}_3 = \text{Na}_2\text{CO}_3 + \text{CO}_2 + \text{H}_2\text{O}$
19. $\text{Pb}(\text{NO}_3)_2 + 2 \text{KI} = 2 \text{KNO}_3 + \text{PbI}_2$
20. $\text{K}_2\text{CrO}_4 + \text{Pb}(\text{NO}_3)_2 = 2 \text{KNO}_3 + \text{PbCrO}_4$



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