

MINISTRY OF EDUCATION
SECONDARY ENGAGEMENT PROGRAMME
GRADE 10
CHEMISTRY

WEEK 9

LESSON 2 - WORKSHEET

State the type of chemical reaction that occurs in each equation shown below.

- a. $\underline{\hspace{1cm}} \text{Cu}_{(s)} + \underline{\hspace{1cm}} \text{O}_{2(g)} \rightarrow \underline{\hspace{1cm}} \text{CuO}_{(s)}$
- b. $\underline{\hspace{1cm}} \text{H}_2\text{O}_{(l)} \rightarrow \underline{\hspace{1cm}} \text{H}_{2(g)} + \underline{\hspace{1cm}} \text{O}_{2(g)}$
- c. $\underline{\hspace{1cm}} \text{Fe}_{(s)} + \underline{\hspace{1cm}} \text{H}_2\text{O}_{(g)} \rightarrow \underline{\hspace{1cm}} \text{H}_{2(g)} + \underline{\hspace{1cm}} \text{Fe}_3\text{O}_{4(s)}$
- d. $\underline{\hspace{1cm}} \text{AsCl}_{3(aq)} + \underline{\hspace{1cm}} \text{H}_2\text{S}_{(aq)} \rightarrow \underline{\hspace{1cm}} \text{As}_2\text{S}_3(s) + \underline{\hspace{1cm}} \text{HCl}_{(aq)}$
- e. $\underline{\hspace{1cm}} \text{CuSO}_4 \cdot 5 \text{H}_2\text{O}_{(s)} \rightarrow \underline{\hspace{1cm}} \text{CuSO}_{4(s)} + \underline{\hspace{1cm}} \text{H}_2\text{O}_{(g)}$
- f. $\underline{\hspace{1cm}} \text{Fe}_2\text{O}_3(s) + \underline{\hspace{1cm}} \text{H}_2(g) \rightarrow \underline{\hspace{1cm}} \text{Fe}_{(s)} + \underline{\hspace{1cm}} \text{H}_2\text{O}_{(l)}$
- g. $\underline{\hspace{1cm}} \text{CaCO}_{3(s)} \rightarrow \underline{\hspace{1cm}} \text{CaO}_{(s)} + \underline{\hspace{1cm}} \text{CO}_{2(g)}$
- h. $\underline{\hspace{1cm}} \text{Fe}_{(s)} + \underline{\hspace{1cm}} \text{S}_{8(s)} \rightarrow \underline{\hspace{1cm}} \text{FeS}_{(s)}$
- i. $\underline{\hspace{1cm}} \text{H}_2\text{S}_{(aq)} + \underline{\hspace{1cm}} \text{KOH}_{(aq)} \rightarrow \underline{\hspace{1cm}} \text{H}_2\text{O}_{(l)} + \underline{\hspace{1cm}} \text{K}_2\text{S}_{(aq)}$
- j. $\underline{\hspace{1cm}} \text{NaCl}_{(l)} \rightarrow \underline{\hspace{1cm}} \text{Na}_{(l)} + \underline{\hspace{1cm}} \text{Cl}_{2(g)}$
- k. $\underline{\hspace{1cm}} \text{Al}_{(s)} + \underline{\hspace{1cm}} \text{H}_2\text{SO}_{4(aq)} \rightarrow \underline{\hspace{1cm}} \text{H}_2(g) + \underline{\hspace{1cm}} \text{Al}_2(\text{SO}_4)_3(aq)$
- l. $\underline{\hspace{1cm}} \text{H}_3\text{PO}_4(aq) + \underline{\hspace{1cm}} \text{NH}_4\text{OH}_{(aq)} \rightarrow \underline{\hspace{1cm}} \text{H}_2\text{O}_{(l)} + \underline{\hspace{1cm}} (\text{NH}_4)_3\text{PO}_4(aq)$
- m. $\underline{\hspace{1cm}} \text{C}_3\text{H}_8(g) + \underline{\hspace{1cm}} \text{O}_2(g) \rightarrow \underline{\hspace{1cm}} \text{CO}_2(g) + \underline{\hspace{1cm}} \text{H}_2\text{O}_{(l)}$
- n. $\underline{\hspace{1cm}} \text{Al}_{(s)} + \underline{\hspace{1cm}} \text{O}_2(g) \rightarrow \underline{\hspace{1cm}} \text{Al}_2\text{O}_3(s)$
- o. $\underline{\hspace{1cm}} \text{CH}_4(g) + \underline{\hspace{1cm}} \text{O}_2(g) \rightarrow \underline{\hspace{1cm}} \text{CO}_2(g) + \underline{\hspace{1cm}} \text{H}_2\text{O}_{(l)}$
- p. $\underline{\hspace{1cm}} \text{K}_2\text{SO}_4(aq) + \underline{\hspace{1cm}} \text{BaCl}_2(aq) \rightarrow \underline{\hspace{1cm}} \text{KCl}_{(aq)} + \underline{\hspace{1cm}} \text{BaSO}_4(s)$
- q. $\underline{\hspace{1cm}} \text{C}_5\text{H}_{12}(l) + \underline{\hspace{1cm}} \text{O}_2(g) \rightarrow \underline{\hspace{1cm}} \text{CO}_2(g) + \underline{\hspace{1cm}} \text{H}_2\text{O}_{(g)}$
- r. $\underline{\hspace{1cm}} \text{Ca}(\text{OH})_2(aq) + \underline{\hspace{1cm}} \text{NH}_4\text{Cl}_{(aq)} \rightarrow \underline{\hspace{1cm}} \text{NH}_4\text{OH}_{(aq)} + \underline{\hspace{1cm}} \text{CaCl}_2(aq)$
- s. $\underline{\hspace{1cm}} \text{V}_2\text{O}_5(s) + \underline{\hspace{1cm}} \text{Ca}_{(s)} \rightarrow \underline{\hspace{1cm}} \text{CaO}_{(s)} + \underline{\hspace{1cm}} \text{V}_{(s)}$
- t. $\underline{\hspace{1cm}} \text{Na}_{(s)} + \underline{\hspace{1cm}} \text{ZnI}_2(aq) \rightarrow \underline{\hspace{1cm}} \text{NaI}_{(aq)} + \underline{\hspace{1cm}} \text{Zn}_{(s)}$
- u. $\underline{\hspace{1cm}} \text{C}_7\text{H}_6\text{O}_3(l) + \underline{\hspace{1cm}} \text{O}_2(g) \rightarrow \underline{\hspace{1cm}} \text{CO}_2(g) + \underline{\hspace{1cm}} \text{H}_2\text{O}_{(l)}$
- v. $\underline{\hspace{1cm}} \text{Ca}_{(s)} + \underline{\hspace{1cm}} \text{N}_2(g) \rightarrow \underline{\hspace{1cm}} \text{Ca}_3\text{N}_2(s)$
- w. $\underline{\hspace{1cm}} \text{Fe}_2\text{O}_3(s) + \underline{\hspace{1cm}} \text{H}_2(g) \rightarrow \underline{\hspace{1cm}} \text{Fe}_{(s)} + \underline{\hspace{1cm}} \text{H}_2\text{O}_{(l)}$
- x. $\underline{\hspace{1cm}} \text{C}_{15}\text{H}_{30}(l) + \underline{\hspace{1cm}} \text{O}_2(g) \rightarrow \underline{\hspace{1cm}} \text{CO}_2(g) + \underline{\hspace{1cm}} \text{H}_2\text{O}_{(g)}$
- y. $\underline{\hspace{1cm}} \text{BN}_{(s)} + \underline{\hspace{1cm}} \text{F}_2(g) \rightarrow \underline{\hspace{1cm}} \text{BF}_3(s) + \underline{\hspace{1cm}} \text{N}_2(g)$
- z. $\underline{\hspace{1cm}} \text{C}_{12}\text{H}_{26}(l) + \underline{\hspace{1cm}} \text{O}_2(g) \rightarrow \underline{\hspace{1cm}} \text{CO}_2(g) + \underline{\hspace{1cm}} \text{H}_2\text{O}_{(g)}$

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Lesson 2: Worksheet - Answers

Question 1

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| a. $2 \text{Cu}_{(s)} + \text{O}_{2(g)} \rightarrow 2 \text{CuO}_{(s)}$ | (formation) |
| b. $2 \text{H}_2\text{O}_{(l)} \rightarrow 2 \text{H}_{2(g)} + \text{O}_{2(g)}$ | (decomposition) |
| c. $3 \text{Fe}_{(s)} + 4 \text{H}_2\text{O}_{(g)} \rightarrow 4 \text{H}_{2(g)} + \text{Fe}_3\text{O}_{4(s)}$ | (single replacement) |
| d. $2 \text{AsCl}_{3(aq)} + 3 \text{H}_2\text{S}_{(aq)} \rightarrow \text{As}_2\text{S}_3_{(s)} + 6 \text{HCl}_{(aq)}$ | (double replacement) |
| e. $\text{CuSO}_4 \cdot 5 \text{H}_2\text{O}_{(s)} \rightarrow \text{CuSO}_4_{(s)} + 5 \text{H}_2\text{O}_{(g)}$ | (other – dehydration or decomposition) |
| f. $\text{Fe}_2\text{O}_3_{(s)} + 3 \text{H}_2_{(g)} \rightarrow 2 \text{Fe}_{(s)} + 3 \text{H}_2\text{O}_{(l)}$ | (single replacement) |
| g. $\text{CaCO}_3_{(s)} \rightarrow \text{CaO}_{(s)} + \text{CO}_2_{(g)}$ | (other or decomposition) |
| h. $8 \text{Fe}_{(s)} + \text{S}_8_{(s)} \rightarrow 8 \text{FeS}_{(s)}$ | (formation) |
| i. $\text{H}_2\text{S}_{(aq)} + 2 \text{KOH}_{(aq)} \rightarrow 2 \text{H}_2\text{O}_{(l)} + \text{K}_2\text{S}_{(aq)}$ | (double replacement) |
| j. $2 \text{NaCl}_{(l)} \rightarrow 2 \text{Na}_{(l)} + \text{Cl}_{2(g)}$ | (decomposition) |
| k. $2 \text{Al}_{(s)} + 3 \text{H}_2\text{SO}_4_{(aq)} \rightarrow 3 \text{H}_{2(g)} + \text{Al}_2(\text{SO}_4)_3_{(aq)}$ | (single replacement) |
| l. $\text{H}_3\text{PO}_4_{(aq)} + 3 \text{NH}_4\text{OH}_{(aq)} \rightarrow 3 \text{H}_2\text{O}_{(l)} + (\text{NH}_4)_3\text{PO}_4_{(aq)}$ | (double replacement) |
| m. $\text{C}_3\text{H}_8_{(g)} + 5 \text{O}_2_{(g)} \rightarrow 3 \text{CO}_2_{(g)} + 4 \text{H}_2\text{O}_{(l)}$ | (hydrocarbon combustion) |
| n. $4 \text{Al}_{(s)} + 3 \text{O}_2_{(g)} \rightarrow 2 \text{Al}_2\text{O}_3_{(s)}$ | (formation) |
| o. $\text{CH}_4_{(g)} + 2 \text{O}_2_{(g)} \rightarrow \text{CO}_2_{(g)} + 2 \text{H}_2\text{O}_{(l)}$ | (hydrocarbon combustion) |
| p. $\text{K}_2\text{SO}_4_{(aq)} + \text{BaCl}_2_{(aq)} \rightarrow 2 \text{KCl}_{(aq)} + \text{BaSO}_4_{(s)}$ | (double replacement) |
| q. $\text{C}_5\text{H}_{12(l)} + 8 \text{O}_2_{(g)} \rightarrow 5 \text{CO}_2_{(g)} + 6 \text{H}_2\text{O}_{(g)}$ | (hydrocarbon combustion) |
| r. $\text{Ca}(\text{OH})_2_{(aq)} + 2 \text{NH}_4\text{Cl}_{(aq)} \rightarrow 2 \text{NH}_4\text{OH}_{(aq)} + \text{CaCl}_2_{(aq)}$ | (double replacement) |
| s. $\text{V}_2\text{O}_5_{(s)} + 5 \text{Ca}_{(s)} \rightarrow 5 \text{CaO}_{(s)} + 2 \text{V}_{(s)}$ | (single replacement) |
| t. $2 \text{Na}_{(s)} + \text{ZnI}_2_{(aq)} \rightarrow 2 \text{NaI}_{(aq)} + \text{Zn}_{(s)}$ | (single replacement) |
| u. $\text{C}_7\text{H}_6\text{O}_3_{(l)} + 7 \text{O}_2_{(g)} \rightarrow 7 \text{CO}_2_{(g)} + 3 \text{H}_2\text{O}_{(l)}$ | (hydrocarbon combustion) |
| v. $3 \text{Ca}_{(s)} + \text{N}_2_{(g)} \rightarrow \text{Ca}_3\text{N}_2_{(s)}$ | (formation) |
| w. $\text{Fe}_2\text{O}_3_{(s)} + 3 \text{H}_2_{(g)} \rightarrow 2 \text{Fe}_{(s)} + 3 \text{H}_2\text{O}_{(l)}$ | (single replacement) |
| x. $2 \text{C}_{15}\text{H}_{30(l)} + 45 \text{O}_2_{(g)} \rightarrow 30 \text{CO}_2_{(g)} + 30 \text{H}_2\text{O}_{(g)}$ | (hydrocarbon combustion) |
| y. $2 \text{BN}_{(s)} + 3 \text{F}_2_{(g)} \rightarrow 2 \text{BF}_3_{(s)} + \text{N}_2_{(g)}$ | (single replacement) |
| z. $2 \text{C}_{12}\text{H}_{26(l)} + 37 \text{O}_2_{(g)} \rightarrow 24 \text{CO}_2_{(g)} + 26 \text{H}_2\text{O}_{(g)}$ | (hydrocarbon combustion) |