

Neutralization Reactions Worksheet

- 1. Write the balanced chemical equations for the neutralization reactions between:
 - a) HI and NaOH

$$HI + NaOH \rightarrow H_2O + NaI$$

b) H₂CO₃ and Sr(OH)₂

$$H_2CO_3 + Sr(OH)_2 \rightarrow 2 H_2O + SrCO_3$$

c) Ca(OH)₂ and H₃PO₄

$$3 \text{ Ca}(OH)_2 + 2 \text{ H}_3PO_4 \rightarrow 6 \text{ H}_2O + \text{Ca}_3(PO_4)_2$$

d) hydrobromic acid and barium hydroxide

$$2 \text{ HBr} + \text{Ba}(\text{OH})_2 \rightarrow 2 \text{ H}_2\text{O} + \text{BaBr}_2$$

e) zinc hydroxide and nitric acid

$$Zn(OH)_2 + 2 HNO_3 \rightarrow 2 H_2O + Zn(NO_3)_2$$

f) aluminum hydroxide and hydrochloric acid

$$Al(OH)_3 + 3 HCl \rightarrow 3 H_2O + AlCl_3$$

2. Complete and balance the following equations representing neutralization reactions:

a)
$$2 \text{ CsOH}$$
 + $H_2 \text{CO}_3$ \rightarrow $2 \text{ } H_2 \text{O}$ + $\text{Cs}_2 \text{CO}_3$

b)
$$2 \text{ HF}$$
 + $Mg(OH)_2$ \rightarrow $2 H_2O$ + MgF_2

c)
$$3 \text{ HNO}_3$$
 + Al(OH)₃ \rightarrow $3 \text{ H}_2\text{O}$ + Al(NO₃)₃

d)
$$HCl$$
 + KOH \rightarrow H_2O + KCl

e)
$$HBrO_3$$
 + $LiOH$ \rightarrow H_2O + $LiBrO_3$

3. Give the name and the formula of the ionic compound produced by neutralization reactions between the following acids and bases:

	Acid and Base reactants	Formula
a)	nitric acid and sodium hydroxide	NaNO ₃
b)	hydroiodic acid and calcium hydroxide	CaI ₂
c)	magnesium hydroxide and hydrosulfuric acid	MgS
d)	ammonium hydroxide and hydrofluoric acid	NH ₄ F
e)	barium hydroxide and sulfuric acid	BaSO ₄
f)	chloric acid and rubidium hydroxide	RbClO ₃
g)	calcium hydroxide and carbonic acid	CaCO ₃

4. For each of the following ionic compounds, identify the acid and base that reacted to form them.

Salt		Acid	Base
a)	NaCl	HCl	NaOH
b)	Ca ₃ (PO ₄) ₂	H ₃ PO ₄	Ca(OH) ₂
c)	Zn(NO ₃) ₂	HNO ₃	Zn(OH) ₂
d)	Al(ClO) ₃	HClO ₃	Al(OH) ₃
e)	NH ₄ I	н	NH ₄ OH