

8.1 Chemical Equations

#6

When a piece of magnesium is added to dilute hydrochloric acid, fizzing occurs and hydrogen gas is released from the mixture. The fizzing is evidence that a(n) (1) reaction has occurred between magnesium and hydrochloric acid. The name given to either magnesium or hydrochloric acid in this case is (2) reactant, and the hydrogen gas that is released is called a(n) (3) product of the reaction. Some other indications that reactions have occurred might be change of color or (4) odor, or formation of a solid (5) precipitate. If a thermometer is placed into a mixture undergoing chemical reaction, you might observe that the temperature has gone up or down, indicating that (6) energy was being released or absorbed. The short hand form by which a reaction is represented is called a(n) (7) skeleton equation. In using this method of representation, you must satisfy the (8) law of conservation of mass, a principle that states that matter is neither created nor destroyed. In order to satisfy this principle, you normally select the proper numerical (9) coefficient to indicate the number of units of each substance taking part in the chemical change.

Explain in words each of the symbols

		$Mg(s) + 2HCl(aq) \rightarrow MgCl_2(aq) + H_2$			
10.	Mg	<u>reactant magnes. metal</u>	15.	(aq)	<u>aqueous soln. in water</u>
11.	(s)	<u>solid state</u>	16.	\rightarrow	<u>yields \rightarrow produces</u>
12.	+	<u>combines with</u>	17.	$MgCl_2(aq)$	<u>magnesium chloride = product</u>
13.	2	<u>2 moles or units</u>	18.	H_2	<u>hydrogen gas = product</u>
14.	$HCl(aq)$	<u>hydrochloric acid</u>	19.	(g)	<u>gas state</u>

Write a word and balanced equation for the reactions below

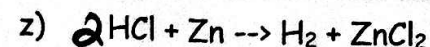
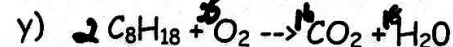
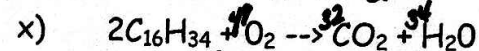
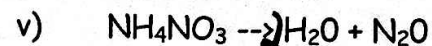
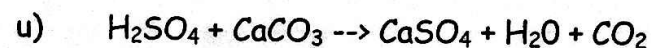
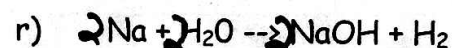
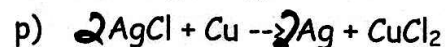
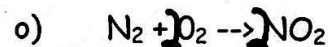
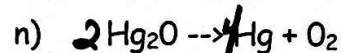
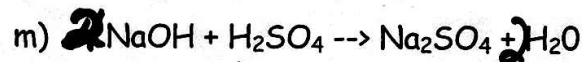
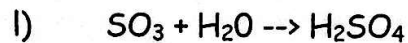
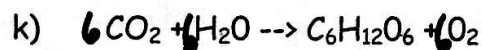
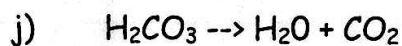
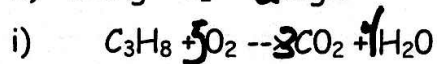
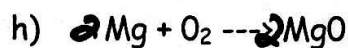
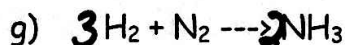
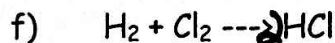
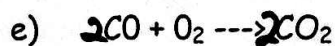
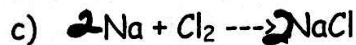
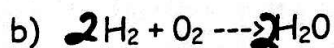
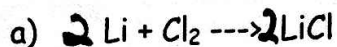
20. Aluminum metal burns in pure oxygen to produce solid aluminum oxide.
 Word equation aluminum + oxygen \rightarrow aluminum oxide
 Chemical equation $4Al(s) + 3O_2(g) \rightarrow 2Al_2O_3(s)$
21. When solid mercury (II) oxide is heated, it breaks down to form liquid mercury and oxygen gas.
 Word equation ~~HgO~~ Mercury(II) oxide \rightarrow Hg(l) ^{mercury} + oxygen
 Chemical equation $2HgO(s) \xrightarrow{\Delta} 2Hg(l) + O_2(g)$
22. A solution of ammonium sulfate added to a solution of lead (II) nitrate, forms soluble ammonium nitrate and solid lead (II) sulfate.
 Word equation ammonium sulfate + lead(II) nitrate \rightarrow ammonium nitrate + lead(II) sulfate
 Chemical equation $(NH_4)_2SO_4(aq) + Pb(NO_3)_2(aq) \rightarrow 2NH_4NO_3(aq) + PbSO_4(s)$
23. Copper metal and iron (II) nitrate in solution are formed when iron metal is added to a solution of copper (II) nitrate.
 Word equation copper + iron(II) nitrate \rightarrow iron + copper(II) nitrate
 Chemical equation $Fe(s) + Cu(NO_3)_2(aq) \rightarrow Fe(NO_3)_2(aq) + Cu(s)$
24. Hydrogen sulfide gas reacts with oxygen gas to form water vapor and solid sulfur.
 Word equation hydrogen sulfide + oxygen \rightarrow water + sulfur
 Chemical equation $2H_2S(g) + O_2(g) \rightarrow 2H_2O(g) + 2S(s)$

Balance the following

25. 4 P(s) + 5 O₂(g) \rightarrow 1 P₄O₁₀(s)
26. 2 Fe(OH)₃(s) \rightarrow 1 Fe₂O₃(s) + 3 H₂O(g)
27. 1 Na₂CO₃(aq) + 1 Ca(OH)₂(aq) \rightarrow 2 NaOH(aq) + 1 CaCO₃(s)
28. 2 K₃PO₄(aq) + 3 MgCl₂(aq) \rightarrow 1 Mg₃(PO₄)₂(s) + 6 KCl(aq)
29. 1 Mg(HCO₃)₂(aq) + 2 HCl(aq) \rightarrow MgCl₂(aq) + 2 H₂O(l) + 2 CO₂(g)
30. 2 Bi(NO₃)₃(aq) + 3 CaI₂(aq) \rightarrow 2 BiI₃(s) + 3 Ca(NO₃)₂(aq)
31. 1 Cu(s) + 2 H₂SO₄(aq) \rightarrow 1 CuSO₄(aq) + 2 H₂O(l) + 1 SO₂(g)

32. BALANCE THE FOLLOWING EQUATIONS:

Date _____
5 cont.



salt forming

carbon dioxide forming

hydrochloric acid forming

Magnesium burning

gas barbeque

soft drink fizzing

photosynthesis

acid rain

Acid rain on marble

Laughing gas

Softening hard water

Candle burning

Gas burning