

9. (a) Al
(b) K
(c) Ar
(d) O
10. (a) Ionic, for example: LiF
(b) Ionic, for example: AlN
(c) Covalent, for example: NH₃
(d) Covalent, for example: CF₄
11. The chart for this question is available for students to complete on BLM 2-22, Chapter 4 Review Chart.
(a) Sodium nitride, Na₃N
(b) Magnesium oxide, MgO
(c) Aluminum sulphide, Al₂S₃
(d) Gallium fluoride, GaF₃
(e) Silver selenide, Ag₂Se
(f) Zinc chloride, ZnCl₂
12. (a) AuF₃
(b) Pb₃N₄
(c) CuI
(d) Ni₂S₃
(e) CrO
13. (a) Tin(IV) chloride
(b) Gold(III) nitride
(c) Lead(IV) sulphide
(d) Bismuth(V) oxide
(e) Iron(III) iodide
(f) Uranium(VI) fluoride
14. (a) Na₂CO₃
(b) (NH₄)₃PO₄
(c) NH₄NO₃
(d) Fe(NO₂)₃
(e) Ca(ClO₄)₂
15. (a) Aluminum sulphate
(b) Ammonium acetate
(c) Iron(III) chromate
(d) Sodium dichromate
(e) Potassium cyanide
(f) Lead(II) hydrogen sulphide
16. (a) PCl₅
(b) NCl₃
(c) Si₆
(d) P₄O₁₀
(e) N₂O₃
17. (a) Dinitrogen tetrafluoride
(b) Phosphorus tribromide
(c) Nitrogen tribromide
(d) Carbon dioxide
18. The chart for this question is available for students to complete on BLM 2-22, Chapter 4 Review Chart.
(a) Ionic, calcium chloride
(b) Ionic, copper(II) chloride

- (c) Covalent, sulfur dichloride
(d) Ionic, cobalt(II) sulphide
19. (a) 4 hydrogen, 2 chlorine, 1 calcium, 2 oxygen
(b) 6 sodium, 2 phosphorous, 24 oxygen, 3 calcium, 6 nitrogen
20. (a) $2\text{KCl} + \text{Pb}(\text{NO}_3)_2 \rightarrow \text{PbCl}_2 + 2\text{KNO}_3$
(b) $2\text{Na} + \text{F}_2 \rightarrow 2\text{NaF}$
(c) $\text{C}_3\text{H}_8 + 5\text{O}_2 \rightarrow 3\text{CO}_2 + 4\text{H}_2\text{O}$
(d) $2\text{C}_4\text{H}_{10} + 13\text{O}_2 \rightarrow 8\text{CO}_2 + 10\text{H}_2\text{O}$
21. (a) The drop in pressure suggests that some of the oxygen gas reacted with the mercury and formed a new product (such as a solid).
(b) $10.8 \text{ g} \times 10.0 \text{ g} = 0.8 \text{ g}$ of gas was consumed
(c) The new substance might be mercury oxide.

Pause and Reflect Answer

Students' answers may vary but may cover some of these points:

- Compounds are substances that contain two or more elements chemically connected.
- Compounds form as a result of rearrangements of electrons that allow atoms or ions to be held together.
- Compounds exist as ionic (ionic bonds, ionic lattice) and covalent (covalent bonds, molecules).
- Covalent bonds form as valence electrons become shared between two atoms.
- Ionic bonds form as atoms gain or lose electrons (by trading them between atoms) to become ions, which are thereafter attracted to each other due to their opposite charge.