Moles of Elements—One-Step Problems (continued)

Exercises

Begin each problem by sketching a diagram that outlines the steps in the solution to the problem.

Convert to moles.

1. 12.04×10^{23} atoms He — 1. _____
2. 3.01×10^{23} atoms Cu — 2. _____
3. 3.612×10^{23} atoms Fe — 3. _____
4. 100 atoms Ar — 4. _____
5. 1 atom S — 5. _____
6. 24 grams C — 6. _____
7. 59.3 grams Sn — 7. _____
8. 98.9 grams Na — 8. _____
9. 5000 grams K — 9. _____
10. 0.005 00 gram Ne — 10. _____

Convert to mass in grams.

11. 10.0 moles Na — 11. _____
12. 2.20 moles Sn — 12. _____
13. 5.00 moles Ag — 13. _____
14. 0.000 300 mole Au — 14. _____
15. 1.00×10^{7} moles B — 15. _____

Convert to number of atoms.

16. 3.00 moles Ar — 16. _____
17. 8.50 moles Fe — 17. _____
18. 25.0 moles Ar — 18. _____
19. 0.001 00 mole Na — 19. _____
20. 1.0×10^{-5} mole Al — 20. _____

Moles of Compounds—One-Step Problems (continued)

Exercises

Begin each problem by sketching a diagram that outlines the steps in the solution to the problem.

Convert to moles.

1. 6.02×10^{23} molecules CO_2 — 1. _____
2. 1.806×10^{23} molecules Cl_2 — 2. _____
3. 1.51×10^{23} molecules H_2O — 3. _____
4. 1000 molecules P_4O_{10} — 4. _____
5. 1 molecule NH_3 — 5. _____
6. 34 grams NH_3 — 6. _____
7. 50.0 grams $CaCO_3$ — 7. _____
8. 360 grams H_2O — 8. _____
9. 9.00 grams H_2SO_4 — 9. _____
10. 1.00 gram NaCl — 10. _____

Convert to mass in grams.

11. 5.0 moles NH_3 — 11. _____
12. 4.50 moles NaCl — 12. _____
13. 0.30 mole HCl — 13. _____
14. 0.002 00 mole Na_2SO_4 — 14. _____
15. 1.50×10^{-4} mole AgCl — 15. _____

Convert to number of molecules.

16. 2.0 moles CO_2 — 16. _____
17. 1.8 moles PCl_3 — 17. _____
18. 35.0 moles NH_3 — 18. _____
19. 0.0500 mole SO_2 — 19. _____
20. 1.00×10^{-3} mole CO — 20. _____

Name _____

STOICHIOMETRY PROBLEMS

Moles of Elements—Two-Step Problems (continued)

Exercises

Begin each problem by sketching a diagram that outlines the steps in the solution to the problem.

Convert to mass in grams.

1. 6.02×10^{23} atoms Ca
2. 1.204×10^{23} atoms Bi
3. 3.01×10^{23} atoms Ni
4. 1000 atoms Al
5. 1 atom Na

1. _____
2. _____
3. _____
4. _____
5. _____

Convert to number of atoms.

6. 540 grams Al
7. 294 grams Au
8. 6.35 grams Cu
9. 2000 grams Mg
10. 1.00 gram Li

6. _____
7. _____
8. _____
9. _____
10. _____

Moles of Compounds—Two-Step Problems (continued)

Exercises

Begin each problem by sketching a diagram that outlines the steps in the solution to the problem.

Convert to number of molecules.

1. 72 grams HCl — 1. _____
2. 9.0 grams H_2O — 2. _____
3. 22 grams CO_2 — 3. _____
4. 500 grams NO — 4. _____
5. 1.00 gram CCl_4 — 5. _____

Convert to mass in grams.

6. 6.02×10^{23} molecules Cl_2 — 6. _____
7. 3.01×10^{23} molecules SO_2 — 7. _____
8. 1.81×10^{24} molecules CO_2 — 8. _____
9. 1000 molecules H_2S — 9. _____
10. 1 molecule H_2O — 10. _____