

Exercise 7.3a

Formula Mass - Answers

Name: _____

Date: _____ Per: _____

Chemists group particles into packages called moles so that they don't have to deal with very large numbers. Similarly, chemists use a special unit of mass so that they don't have to express the mass of individual atoms, ions, and molecules in extremely small numbers of grams. When chemists express the mass of individual particles of matter they use a unit called the atomic mass unit (*u*) or dalton (*Da*). (*The two units mean the same thing.*)

- To find the mass of an individual atom, use the mass from the periodic table (*the unit would be u or Da*).

Example: the mass of 1 hydrogen atom (H) would be 1.008 u.

- To find the mass of a compound, molecule, or ion simply add the masses of all of the atoms present in the substance together (*the unit would be u or Da*).

*Examples: the mass of 1 molecule of hydrogen (H₂) would be 1.008 u x 2, or 2.016 u.
the mass of NaCl would be 22.990 u + 35.453 u, or 58.443 u.*

DIRECTIONS: For each of the following substances, write the formula and calculate the formula mass.

<u>Name</u>	<u>Formula</u>	<u>Mass</u>	<u>Name</u>	<u>Formula</u>	<u>Mass</u>
1. zinc acetate	<u>Zn(C₂H₃O₂)₂</u>	<u>183.497 u</u>	16. water	<u>H₂O</u>	<u>18.015 u</u>
2. copper (I) sulfate	<u>Cu₂SO₄</u>	<u>223.153 u</u>	17. cobaltous chloride	<u>CoCl₂</u>	<u>129.839 u</u>
3. carbon dioxide	<u>CO₂</u>	<u>44.009 u</u>	18. sodium hydroxide	<u>NaOH</u>	<u>39.997 u</u>
4. calcium bicarbonate	<u>Ca(HCO₃)₂</u>	<u>162.110 u</u>	19. silicon dioxide	<u>SiO₂</u>	<u>60.084 u</u>
5. carbonic acid	<u>H₂CO₃</u>	<u>62.024 u</u>	20. magnesium chloride	<u>MgCl₂</u>	<u>95.211 u</u>
6. aluminum nitrate	<u>Al(NO₃)₃</u>	<u>212.994 u</u>	21. diphosphorus pentachloride	<u>P₂Cl₅</u>	<u>239.213 u</u>
7. ammonium sulfate	<u>(NH₄)₂SO₄</u>	<u>132.139 u</u>	22. lithium phosphide	<u>Li₃P</u>	<u>51.797 u</u>
8. barium chloride	<u>BaCl₂</u>	<u>208.24 u</u>	23. hypochlorous acid	<u>HClO</u>	<u>52.460 u</u>
9. iron (II) phosphate	<u>Fe₃(PO₄)₂</u>	<u>357.475 u</u>	24. potassium carbide	<u>K₄C</u>	<u>168.403 u</u>
10. dinitrogen pentoxide	<u>N₂O₅</u>	<u>108.009 u</u>	25. hydrogen sulfide	<u>H₂S</u>	<u>34.081 u</u>
11. strontium sulfite	<u>SrSO₃</u>	<u>167.68 u</u>	26. chromic oxide	<u>Cr₂O₃</u>	<u>151.989 u</u>
12. hydrochloric acid	<u>HCl</u>	<u>36.461 u</u>	27. ammonium dichromate	<u>(NH₄)₂Cr₂O₇</u>	<u>252.063 u</u>
13. manganese (III) oxide	<u>Mn₂O₃</u>	<u>157.873 u</u>	28. aluminum acetate	<u>Al(C₂H₃O₂)₃</u>	<u>204.114 u</u>
14. ammonia	<u>NH₃</u>	<u>17.031 u</u>	29. barium hydroxide	<u>Ba(OH)₂</u>	<u>171.34 u</u>
15. sulfur hexafluoride	<u>SF₆</u>	<u>146.053 u</u>	30. gold (III) nitrate	<u>Au(NO₃)₃</u>	<u>382.98 u</u>