Molecular Mass and Mole Calculations

Group I. Find the molecular mass or formula mass for each of the compounds shown below.

1. \( \text{H}_3\text{PO}_4 = 3(1.01) + (30.97) + 4(16.00) = 98.09 \text{ g/mol} \)
2. \( \text{AlCl}_3 \)
3. \( \text{Dy(OH)}_3 = (162.50) + 3(16.00) + 3(1.01) = 213.53 \text{ g/mol} \)
4. \( \text{K}_2\text{C}_4\text{H}_4\text{O}_6 \)
5. \( \text{H}_2\text{SO}_4 = 2(1.01) + 3(32.07) + 4(16.00) = 98.09 \text{ g/mol} \)
6. \( \text{N}_2\text{O}_5 \)
7. \( \text{CuSO}_4 \cdot 5\text{H}_2\text{O} = (63.55) + (32.07) + 4(16.00) = 169.21 \text{ g/mol} \)
8. \( \text{NiSO}_4 \)
9. \( \text{Sn(OH)}_4 \)
10. \( \text{(NH}_4\text{)}_3\text{PO}_4 \)
11. \( \text{Fe(C}_2\text{H}_3\text{O}_2)_3 \)
12. \( \text{SO}_2 \)
13. \( \text{KAl(SO}_4)_2 \cdot 12\text{H}_2\text{O} \)
14. \( \text{NaIO}_4 \)
15. \( \text{Pr(OH)}_3 \)
16. \( \text{K}_4\text{Fe(CN)}_6 \)
17. \( \text{Nd}_2\text{O}_3 \)
18. \( \text{Sb(NO}_3)_3 \)
19. \( \text{K}_3\text{PO}_4 \)
20. \( \text{Ga}_2(\text{SO}_4)_3 = 2(69.72) + 3(32.07) + 12(16.00) = 427.65 \text{ g/mol} \)
21. \( \text{zinc acetate} \)
22. \( \text{copper(I) sulfate} = 63.55 + 32.07 = 95.62 \text{ g/mol} \)
23. carbon dioxide
24. calcium bicarbonate \((40.08) + (2 \times 16.00) = 64.28 \text{ g/mol} \)
25. nitric acid
26. \( \text{aluminum nitrate} = 26.98 + (4 \times 1.01) = 40.99 \text{ g/mol} \)
27. ammonium sulfate
28. \( \text{barium chloride dihydrate} = (137.33) + (35.45) + (2 \times 1.01) = 174.89 \text{ g/mol} \)
29. iron(II) phosphate
30. strontium hydroxide \((87.62) + (1.01) = 88.54 \text{ g/mol} \)
31. sodium sulfite
32. magnesium nitride

(continued)
Mixtures

Any two or more things combined: ex - Air, boric acid, salt water, lemonade, salad, gatorade, kool-aid, etc. Today, we talked about non-solution mixtures. We learned what the difference between homogeneous and heterogeneous is. We also learned what is an example of a heterogeneous mixture -does not mix well with everything.

What's the difference between homogeneous and heterogeneous?

Homogeneous - uniformly distributed

Heterogeneous - not uniformly distributed

What's the difference between homogeneous and heterogeneous?

Problems:

Molarity: M = mol/L

1) 3 Molar
   1 M = mol/L
   3 M = mol/L X 3 = 15 moles

2) 5 M = mol/L X 3 = 15 moles
   10 M = mol/L X 10 = 10L

What's something invincible?

What's something immiscible?