

NAME:

HONORS CHEMISTRY

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SECTION:

Pairs/Check: Colligative Properties

Directions:

1. Put both names on the paper.
  2. The older partner does the even problems. The younger partner does the odd problems. Take turns answering the questions.
  3. After each problem, trade papers and check your partner's work.
  4. Discuss the answer with your partner. If both partners agree on the answer, the solver initials the answer. If an agreement can't be reached, both partners raise their hands to get the teacher's attention.
  5. Complete the self-assessment and sign both papers.
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List the relevant equations:

Constants

Solvent	$K_b$ °C/molal	$K_f$ °C/molal
Water	0.52	1.86
Ethanol	1.20	1.99
Benzene	2.67	5.12
Chloroform	3.85	4.68

1. What is the new freezing point if 75 grams of glucose, a non-electrolyte, are added to 500. grams of water? Glucose has the chemical formula  $C_6H_{12}O_6$ .
  
  
  
  
  
  
  
  
  
  
2. How many grams of benzoic acid,  $C_7H_6O_2$ , must be dissolved in 78.1 g of ethanol to raise the boiling point by  $4.00^\circ C$ ?
  
  
  
  
  
  
  
  
  
  
3. What is the new boiling point if 25.0 grams of  $MgCl_2$  is dissolved in 975 g of water?

4. Calculate the freezing point of the solution in problem 3.
  
5. When 10.0 grams of a nonelectrolyte are dissolved in 125 grams of benzene, the freezing point lowers by  $4.3^{\circ}\text{C}$  compared to pure benzene. What is the gram formula mass of the unknown compound?
  
6. When 42.0 grams of ibuprofen,  $\text{C}_{13}\text{H}_{18}\text{O}_2$ , are dissolved in 975 grams of naphthalene, the freezing point lowers by  $1.46^{\circ}\text{C}$ . What is the freezing point depression constant for naphthalene?

The purpose of this assignment was to:

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Did I:	Circle the appropriate response:		
Explain how I did the problems?	Always	Sometimes	Rarely
Listen while my partner explained?	Always	Sometimes	Rarely
Give my partner positive support?	Always	Sometimes	Rarely
Stay on task during the assignment?	Always	Sometimes	Rarely
Use encouraging and polite words?	Always	Sometimes	Rarely
Record my work on the paper?	Always	Sometimes	Rarely
Demonstrate an understanding of the material?	Yes	No	

Signatures:

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Comments: