

Exercise 12.3c(H)

Solution Concentration Matrix

Name: _____

Date: _____ Per: _____

DIRECTIONS: Fill in the table below with information relating to solution concentrations.

Concentration Measure	Definition	Ratio	Multiplier?	Unit / Symbol	Write as a Ratio
Percent by Mass					3.52% _____
Percent by Volume					78.2% _____
Molarity					3.40 M _____
Molality					3.20 m _____
Mole Fraction					0.333 _____
Parts per Million					23 PPM _____
Parts per Billion					10 PPB _____
Mass/Volume					35 g/L _____

DIRECTIONS: Answer the following in the space provided.

- What do all of the solution concentrations have in common? _____
- How is molality different from the other solution concentrations? _____
- Which solution concentrations have a multiplier used in their formula? _____

- How are molarity, molality and mole fraction similar? _____

- Which solution concentration expression is related to density? How are they related? _____

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Name: _____

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DIRECTIONS: Assume you are dissolving 12.6 g of carbon tetrachloride, CCl_4 , in half a liter of benzene (C_6H_6).

6. Calculate the volume of carbon tetrachloride used.

	CCl_4	C_6H_6
Density	1.59 g/mL	0.876 g/mL

7. Calculate the mass of benzene used.

8. Calculate the solution concentration in each of the following systems:

a. Percent by mass

b. Percent by volume

c. Molarity

d. Molality

e. Mole fraction

f. Parts per million (mass)

g. Parts per billion (mass)