Molarity

New Regents original practice • Name: _____ Date: _____
Show your work for written answers.

Molarity is moles of solute per liter of solution. Use M = n/V and 1 L = 1,000 mL.

1 A solution contains 0.30 mol of solute in 0.50 L of solution. What is its molarity?

(1) 0.15 M

(2) 0.60 M

(3) 1.7 M

(4) 6.0 M

2 A 250. mL solution contains 0.125 mol of solute. Calculate its molarity and show the volume conversion. [1]

Answer and work

3 How many moles of dissolved solute are present in 2.00 L of a 0.150 M solution? Show your setup. [1]

Answer and work

4 Which quantity belongs in the denominator when calculating the molarity of dissolved glucose?

(1) The mass of the glucose

(2) The mass of the water used

(3) The volume of water added before mixing

(4) The final volume of the solution

Glucose Standards

Use the information below to answer the questions.

A laboratory prepares three glucose standards and records the amount of glucose and the final volume of each solution.

Standard	Glucose (mol)	Solution volume (L)
A	0.100	0.500
B	0.150	0.500
C	0.150	0.750

5 Which standard has the greatest glucose molarity?

(1) A

(2) B

(3) C

(4) All three have the same molarity.

6 Show that standards A and C have the same molarity even though they contain different amounts of glucose. [1]

Answer and work

7 A 0.100 L portion of well-mixed standard B is poured into a clean container. What is its glucose molarity?

(1) 0.0300 M

(2) 0.150 M

(3) 0.300 M

(4) 1.50 M

8 Equal-volume portions are taken from A and B. Which portion contains more moles of glucose? Explain using concentration. [1]

Answer and work