Good Ol' Review for Chemistry 232 Quiz 5

1) James is trying to synthesize Jamesonnium (J) via the following reaction:

$$3A_{(s)} + 4B_{(aq)} \rightarrow C_{(g)} + 7J_{(s)}$$

a) Assume Product $J_{(g)}$ is shown to be forming at a rate of .0072 M/s. What are the rates of change for A, B and C?

b) Assume the rate of disappearance for A is 1.2M/min, what is the rate of disappearance of C?

c) Mark said that the concentration of Jamesonnium, a second order reaction, remains constant overtime. Mark got smacked across the face as a result. Explain why this was necessary.

d) What are four ways you can speed up this reaction and explain each.

1) A first order reaction of a nitrite ion has a half-life of 230 seconds. What is its rate constant?

2) Radioactive Jamesonnium takes 575 seconds to drop from a concentration of 1.78 M to .455 M. What is the half life for Jamesonnium?

3) Data for a certain reaction is given below. What is the order and the rate constant for this reaction?

[A]	[B]	Initial Rate M/s
0.100	0.100	0.028
0.200	0.100	0.058
0.200	0.200	0.082
0.400	0.400	0.23

Reaction has the overall order of 3.5. What are the units for the rate constant?

The osmotic pressure of a solution containing 6.69 mg of Jamesonite per 50.0 ml of solution is 4.55 torr and 45 deg C. What is Jamesonite's molar mass?

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Conceptual Chemistry! :-)

Consider the following data of derivatives of Jamesonnium atom (J) at 50 deg C with the following amounts and properties

Compound	Molar Mass (g/mol)	Amount Present (g)	Heat Capacity J/gC	Molality m	Temperature (C)
Jamesurrium (JN_3)	50	150	18	0.15	100
Jamesonite (JF_2)	46	100	13	0.12	100
Jamesium ($J_2H_6O_3$)	70	50	34	0.25	100

If enough information is given, relate these by larger:

Velocity

Average Kinetic Energy

Partial pressure

Partial pressure assuming equal amounts

Volume occupied

Volume occupied assuming equal amounts

Mole fraction assuming equal amounts

Change in temperature when 5 kJ is added

Change in temperature assuming equal amounts

Temperature when equal thermal energy is removed (assume equal amounts)

Intermolecular Forces

Boiling point

Vapor pressure

Lowest Freezing Point

Highest Boiling Point