

Name _____ Period _____

College Prep Chemistry of the Earth

Assignment 5M – Triple Stoichiometry Conversions (Part 1)

20 Points

For the following chemical reactions, complete the chart and perform the following conversions

Chemical Equation	$2\text{FeBr}_2 + \text{TiO}_2 \rightarrow 2\text{FeO} + \text{TiBr}_4$ (2:1:2:1)			
Molar Ratio	2 mol FeBr ₂	1 mol TiO ₂	2 mol FeO	1 mol TiBr ₄

Molar Masses
(Pick for each chart)

MM FeBr ₂	215.65g/mol	MM FeO	71.85g/mol
MM TiO ₂	79.87g/mol	MM TiBr ₄	367.47g/mol

Convert 321.4g FeBr ₂ to mol FeBr ₂	
321.4g FeBr ₂ *	1 mol FeBr ₂ **
Conv. 1	215.65g FeBr ₂ *
mol FeBr ₂ =	1.49 mol FeBr ₂ **

Convert mol FeBr ₂ to mol TiBr ₄	
1.49 mol FeBr ₂	1 mol TiBr ₄
Conv. 2	2 mol FeBr ₂
mol TiBr ₄ =	0.75 mol TiBr ₄

Double Check Mol Ratio above!

Convert mol TiBr ₄ to mass TiBr ₄	
0.75 mol TiBr ₄	367.47g TiBr ₄
Conv. 3	1 mol TiBr ₄
mol TiBr ₄ =	275.60g TiBr ₄

*** Always 1 [Not from mol ratio]
(MM is — g = 1 mol)

Round to ±0.01 (2 after dec.)

Final B

Convert 110.4g TiO ₂ to mol TiO ₂	
mol TiO ₂ =	

Convert mol TiO ₂ to mol FeO	
mol FeO =	

Convert mol FeO to mass FeO	
mol FeO =	