

Put the first three letters of your LAST NAME in the boxes:

Simon Gross - Biberdorf

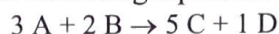
Full Name: Julia Weist (S), UTEID: _____
Megan Withg (S) Maria Ochoa (B) Chase Herrington (A)
Kayla Myers (A) Madeline Morrow (A)

Unit 1: Gases Discussion Worksheet #1, Stoichiometry and Pressure

Show all work for credit. Your work and answers must fit in the boxes or diagrams provided for each question.

Part I:

1. 40.0 grams of A (60.0 g/mol) react with 35.0 grams of B (40.0 g/mol) to form C (37.0 g/mol) and D (75.0 g/mol) according to the following equation:



Which reactant is the limiting reactant? (Show the work used to make this determination in the box and then circle your answer.)

40g A
35g B

$$40 \cancel{\text{g A}} \times \frac{1 \cancel{\text{mol A}}}{60 \cancel{\text{g A}}} \times \frac{2 \cancel{\text{mol B}}}{3 \cancel{\text{mol A}}} \times \frac{40 \text{g B}}{1 \cancel{\text{mol B}}} = 17.78 \text{ g B}$$

$$35 \cancel{\text{g B}} \times \frac{1 \cancel{\text{mol B}}}{40 \cancel{\text{g B}}} \times \frac{3 \cancel{\text{mol A}}}{2 \cancel{\text{mol B}}} \times \frac{60 \text{g A}}{1 \cancel{\text{mol A}}} = 78.75 \text{ g A}$$

you only have 40g

The limiting reactant is (circle one): A B C D

2. For the reaction in #1, what is the maximum number of grams (of D) that can be produced? Again, show your work and put your final answer in the spaces in the lower right corner.

$$40 \cancel{\text{g A}} \times \frac{1 \cancel{\text{mol A}}}{60 \cancel{\text{g A}}} \times \frac{1 \cancel{\text{mol D}}}{3 \cancel{\text{mol A}}} \times \frac{75 \text{g D}}{1 \cancel{\text{mol D}}} = \boxed{16.67 \text{ g}}$$

Answer: 16.67 g D

3. For the reaction in #1, how many grams of excess reactant are left over at the completion of the reaction? Again, show your work and put your final answer in the spaces in the lower corner.

$$40 \cancel{\text{g A}} \times \frac{1 \cancel{\text{mol A}}}{60 \cancel{\text{g A}}} \times \frac{2 \cancel{\text{mol B}}}{3 \cancel{\text{mol A}}} \times \frac{40 \text{g B}}{1 \cancel{\text{mol B}}} = 17.78 \text{ g B}$$

$$35 \text{ g B} - 17.78 \text{ g B} =$$

$$17.22 \text{ g B excess}$$

Answer: 17.22 g of B