

Show all work; observe all significant figures, and record units with all answers.

1.  $1 \text{ cheese slice} + 2 \text{ bread slices} \rightarrow 1 \text{ cheese sandwich}$

- a. A cook has 12 slices of cheese and 20 slices of bread. How many cheese sandwiches can be made?

Ans: \_\_\_\_\_

- b. A cook has 38 slices of cheese and 4 loaves of bread with 18 slices per loaf, how many cheeses sandwiches can be made?

Ans: \_\_\_\_\_

- c. A super cook has 0.100 moles of cheese slices and 0.600 moles of bread slices. How many moles of cheese sandwiches can be made?

Ans: \_\_\_\_\_

- d. How many cheese sandwiches can be made from the starting materials in (c)?

Ans: \_\_\_\_\_

- e. Cheese slices have a mass of 12.5 grams each. If you have 5.00 kg of cheese slices, what is the maximum number of sandwiches that can be made?

Ans: \_\_\_\_\_

- f. How many slices of bread are needed to make sandwiches from all the cheese in (e)?

Ans: \_\_\_\_\_

- g. The average bread slice has a mass of 20.0 grams. How much is the total mass of the bread from part (f)?

Ans: \_\_\_\_\_

- h. What is the mass of the sandwiches made from bread in part (g)?

Ans: \_\_\_\_\_

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A total of 4.0 **moles** of hydrogen and 3.0 **moles** of oxygen are available.

a. Which reactant is **limiting**?

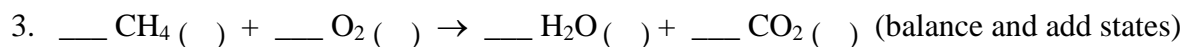
Ans: \_\_\_\_\_

b. What is the maximum number of **moles** of water that can be formed?

Ans: \_\_\_\_\_

c. What is the **mass** (g) of the maximum amount of water that can be formed?

Ans: \_\_\_\_\_



A total of 16.0 **grams** of methane and 64.0 **grams** of oxygen are available. Once mixed, this reaction runs *to completion*, meaning that all of the limiting reactant is consumed.

a. Which reactant is **limiting**?

Ans: \_\_\_\_\_

b. How many **moles** of water are formed?

Ans: \_\_\_\_\_

c. How many **moles** of methane are consumed?

Ans: \_\_\_\_\_

d. How many **moles** of oxygen are consumed?

Ans: \_\_\_\_\_

e. What **mass** of oxygen is consumed?

Ans: \_\_\_\_\_

f. What **mass** of water is formed?

Ans: \_\_\_\_\_

g. What **mass** of carbon dioxide is formed?

Ans: \_\_\_\_\_