

Chapter 8 Practice Questions

- 1) How many waffles can be made from 1 dozen eggs, assuming you have enough of all other ingredients?

Given: 2 cups flour + 3 eggs + 1 tbs oil → 4 waffles

- A) 16
 - B) 48
 - C) 4
 - D) 12
 - E) not enough information
- 2) Diatomic N₂ can react with diatomic H₂ to form ammonia (NH₃). The balanced chemical equation is:
N₂ + 3 H₂ → 2 NH₃
If 6 moles of H₂ totally reacted with more than enough N₂, how many moles of ammonia would be expected to form?
- A) 4 moles
 - B) 2 moles
 - C) 6 moles
 - D) 3 moles
 - E) not enough information
- 3) How many moles of aluminum are needed to make 9 moles of molecular hydrogen?
Given the reaction: 2 Al + 6 HCl → 2 AlCl₃ + 3H₂
- A) 3 moles
 - B) 6 moles
 - C) 2 moles
 - D) 4 moles
 - E) none of the above
- 4) How many grams of water are made from the reaction of 4.0 grams of hydrogen gas?
Given the reaction: 2H₂ + O₂ → 2H₂O
- A) 4.5
 - B) 18
 - C) 72
 - D) 36
 - E) not enough information
- 5) Given that 4 NH₃ + 5 O₂ → 4 NO + 6 H₂O, when 4.50 mol of H₂O are formed, the amount of NO formed is:
- A) 6.75 mol.
 - B) 1.50 mol.
 - C) 4.50 mol.
 - D) 3.00 mol.
 - E) none of the above

6) Which ingredient is the limiting reactant if you have 5 cups of flour, 9 eggs and 3 tbs of oil?

Given: 2 cups flour + 3 eggs + 1 tbs oil → 4 waffles

- A) waffles
- B) eggs
- C) flour
- D) oil
- E) not enough information

7) What is the theoretical yield of waffles if you have 5 cups of flour, 9 eggs and 3 tbs of oil?

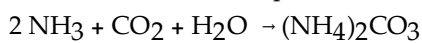
Given: 2 cups flour + 3 eggs + 1 tbs oil → 4 waffles

- A) 12
- B) 10
- C) 4
- D) 6
- E) not enough information

8) Determine the theoretical yield of C when 3 moles of A and 10 moles of B are reacted in the following generic chemical equation: $2A + 5B \rightarrow 4C$.

- A) 3 mol
- B) 8 mol
- C) 6 mol
- D) 4 mol
- E) none of the above

9) A balanced chemical equation used to prepare ammonium carbonate, $(\text{NH}_4)_2\text{CO}_3$, is:



Which choice of reactant quantities shown below would result in the greatest amount of ammonium carbonate being formed?

- A) React 2 moles NH_3 , 8 moles CO_2 , and 8 moles H_2O
- B) React 2 moles NH_3 , 1 mole CO_2 , and 1 mole H_2O
- C) React 4 moles NH_3 , 2 moles CO_2 , and 2 moles H_2O
- D) React 4 moles NH_3 , 1 mole CO_2 , and 2 moles H_2O
- E) none of the above

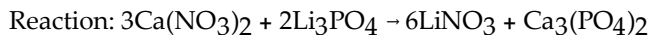
10) If the theoretical yield of a reaction is 42.0 grams of product and the percent yield is 75%. How many grams were actually produced?

- A) 5400
- B) 1.8
- C) 32
- D) 56
- E) none of the above

11) What is the theoretical yield of a reaction if 25.0 grams of product were actually produced from a reaction that has a 88% yield?

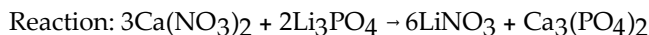
- A) 22.0
- B) 352
- C) 28.4
- D) 3.52
- E) none of the above

12) What is the limiting reactant for the following reaction given we have 3.4 moles of $\text{Ca}(\text{NO}_3)_2$ and 2.4 moles of Li_3PO_4 ?



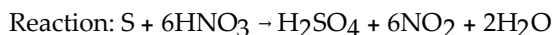
- A) $\text{Ca}(\text{NO}_3)_2$
- B) LiNO_3
- C) $\text{Ca}_3(\text{PO}_4)_2$
- D) Li_3PO_4
- E) not enough information

13) What is the excess reactant for the following reaction given we have 3.4 moles of $\text{Ca}(\text{NO}_3)_2$ and 2.4 moles of Li_3PO_4 ?



- A) LiNO_3
- B) Li_3PO_4
- C) $\text{Ca}(\text{NO}_3)_2$
- D) $\text{Ca}_3(\text{PO}_4)_2$
- E) not enough information

14) How many grams of NO_2 are theoretically produced if we start with 1.20 moles of S and 9.90 moles of HNO_3 ?



- A) 455
- B) 331
- C) 7.20
- D) 786
- E) not enough information

15) A sample of 8.5 g NH_3 on oxidation produces 4.5 g of NO . Calculate the percent yield.



- A) 70%
- B) 15 %
- C) 60%
- D) 30%
- E) none of the above

16) How many grams of the excess reactant remain assuming the reaction goes to completion and that you start with 15.5 g of Na_2S and 12.1 g CuSO_4 ?



- A) 5.92
- B) 15.45
- C) 9.58
- D) 0.05
- E) not enough information

- 17) The reaction of one mole of nitrogen gas with three moles of hydrogen gas releases 92 kJ of thermal energy to the surroundings. Which of the following is TRUE?
- A) Complete reaction of two moles of nitrogen gas would release 184 kJ of thermal energy in this reaction.
 - B) This reaction is exothermic.
 - C) This reaction has a negative enthalpy of reaction.
 - D) All of the above are true.
 - E) None of the above are true.

18) Consider the following reaction: $2 \text{Mg} + \text{O}_2 \rightarrow 2 \text{MgO}$ $\Delta H_{\text{rxn}} = -1203 \text{ kJ}$

Calculate the amount of heat (in kJ) associated with complete reaction of 4 moles of Mg.

- A) -1203 kJ
- B) -2406 kJ
- C) -4812 kJ
- D) -601.5 kJ
- E) none of the above

Answer Key

Testname: PRACTICEQ_CH08

- 1) A
- 2) A
- 3) B
- 4) D
- 5) D
- 6) C
- 7) B
- 8) C
- 9) C
- 10) C
- 11) C
- 12) A
- 13) B
- 14) B
- 15) D
- 16) C
- 17) D
- 18) B