

# Basic Stoichiometry Problems

November 22, 2017 2:09 PM

Chem 11

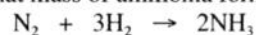
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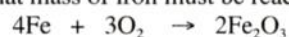
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## Basic Stoichiometry Problems

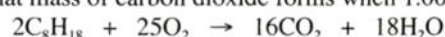
1. What mass of ammonia forms when 5.6 g of nitrogen reacts?



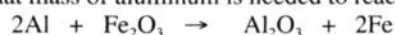
2. What mass of iron must be reacted to produce 32 grams of iron (III) oxide?



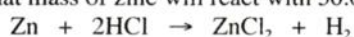
3. What mass of carbon dioxide forms when 1.00 kg of octane is burned?



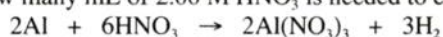
4. What mass of aluminum is needed to react with 6.4 g of iron (III) oxide?



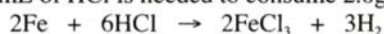
5. What mass of zinc will react with 50.0 mL of 3.00 M HCl?



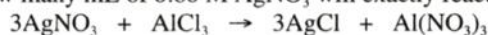
6. How many mL of 2.00 M  $\text{HNO}_3$  is needed to consume 5.4 g of aluminum?



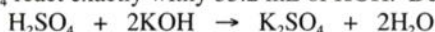
7. 20 mL of HCl is needed to consume 2.8g Fe. What is the concentration of HCl?



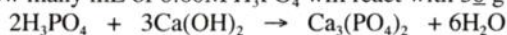
8. How many mL of 0.80 M  $\text{AgNO}_3$  will exactly react with 10.0 mL of 0.25 M  $\text{AlCl}_3$ ?



9. 25.0 mL of 0.240M  $\text{H}_2\text{SO}_4$  react exactly with 35.2 mL of KOH. Determine the concentration of KOH.



10. How many mL of 0.60M  $\text{H}_3\text{PO}_4$  will react with 30 g of  $\text{Ca}(\text{OH})_2$ ?



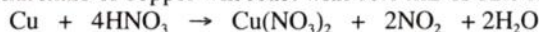
11. What mass of aluminum hydroxide would react exactly with 15.0 mL of 2.00M HCl?



12. What concentration HCl is needed so that 400 mL will react with 17.0 g of magnesium?



13. What mass of copper will react with 10.0 mL of 12.0 M nitric acid?



14. How many kilograms for oxygen are needed to react with 51 kg of ammonia?



### Answers

- 6.8 g  $\text{NH}_3$
- 22 g Fe
- $3.09 \times 10^3$  g  $\text{CO}_2$
- 2.17 g Al
- 4.91 g Zn
- 0.30 L  $\text{HNO}_3$  (300 mL)
- 7.5 M HCl
- 0.0094 L  $\text{AgNO}_3$  (9.4 mL)
- 0.341 M KOH
- 0.45 L (450 mL)
- 0.78 g  $\text{Al}(\text{OH})_3$
- 3.50 M HCl
- 1.91 g Cu
- 120 kg  $\text{O}_2$

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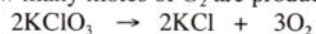
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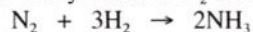
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Chap 7: Mole Ratio in Reactions

1. How many moles of O<sub>2</sub> are produced from 1.50 moles of KClO<sub>3</sub>?



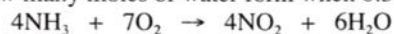
2. How many moles of H<sub>2</sub> are needed to react with 8.0 moles of N<sub>2</sub>?



3. How many moles of HCl are needed to form 4.5 moles of H<sub>2</sub>?



4. How many moles of water form when 0.50 moles of O<sub>2</sub> react?



5. How many moles of methane can react with 24.0 moles of O<sub>2</sub>?



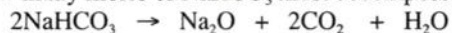
6. How many moles of calcium phosphate form when 2.0 moles of Ca(OH)<sub>2</sub> react?



7. How many moles of Mg can react with 0.40 mol HCl?



8. How many moles of NaHCO<sub>3</sub> must decompose to produce 0.80 mol H<sub>2</sub>O?



Answers:

1. 2.25 mol
2. 24 mol
3. 9.0 mol
4. 0.43 mol
5. 12.0 mol
6. 0.67 mol
7. 0.20 mol
8. 1.6 mol