

**Goal** • Check your understanding of Chapter 9.

Circle the letter of the best answer.

1. What is the name of the separation method that separates the parts of a mixture based on properties such as particle size and magnetism?
  - A. mechanical filtration
  - B. mechanical mixing
  - C. mechanical sorting
  - D. mechanized sorting
2. What does the separation method of evaporation enable you to do?
  - A. recover both the solute and the solvent from a solution
  - B. recover only the solute from a solution
  - C. recover only the solvent from a solution
  - D. recover the solution from a mixture
3. Which of the following separation methods would you use to separate the parts of ink?
  - A. condensation
  - B. filter paper
  - C. paper chromatography
  - D. simple distillation
4. What happens during the fractional distillation of petroleum?
  - A. parts of the mixture with higher boiling points condense higher in the tower where it is cooler
  - B. parts of the mixture with higher boiling points condense lower in the tower where it is cooler
  - C. parts of the mixture with lower boiling points condense higher in the tower where it is cooler
  - D. parts of the mixture with lower boiling points condense lower in the tower where it is cooler
5. Why does panning separate gold from sand and gravel?
  - A. gold floats while sand or gravel settles to the bottom of the pan
  - B. gold is less dense than pieces of sand or gravel with the same mass
  - C. gold is so heavy that even tiny bits have more mass than pieces of sand or gravel
  - D. gold is so dense that even tiny bits have more volume than pieces of sand or gravel
6. Which statement best describes petroleum?
  - A. It is a complex mixture of homogeneous solutions.
  - B. It is a complex heterogeneous mixture of liquid, solid, and gaseous substances.
  - C. It is a heterogeneous mixture that is easily separated into its many parts.
  - D. It is a simple mixture of liquid, solid, and gaseous substances.

Match the term on the left with the best description on the right.  
Each description may be used only once.

Term	Description
_____ 7. evaporation _____ 8. simple distillation _____ 9. complex _____ 10. chromatography _____ 11. filter/filtration _____ 12. mechanical sorting _____ 13. magnetism	A. prevents larger particles from passing through smaller holes B. can be used to separate solid mixtures on the basis of the size of their particles C. can be used to separate mixtures on the basis of the magnetic properties of their particles D. recovers both the solute and solvent from a solution E. recovers only the solute from a solution F. a method used to separate the solvents in a mixture such as inks. G. describes the nature of a solution such as petroleum H. recovers only the solvent from a solution

### Short Answer Questions

13. What are two properties you would consider to mechanically sort a mixture?

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14. Explain how filtration works to help protect a carpenter from breathing in sawdust and other particles.

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15. Explain why filtration does not work with homogeneous mixtures.

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continued

16. In the space below, sketch and label the main components of the equipment that is used for simple distillation. Label when evaporation and condensation occur. Use the picture on page 287 of your text.

17. Describe the role of the property of boiling point in fractional distillation.

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18. Explain why simple distillation is not a good separation method for a mixture such as petroleum.

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19. How can we help reduce the amount of waste treatment our water needs?

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