

chapter 3 assignment (Homework)

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1.

Classify the following as a mixture or pure substance.

- (a) multivitamin tablet
- (b) distilled water
- (c) milk
- (d) the blue liquid in your car's windshield washer

2.

Classify the following mixtures as homogeneous or heterogeneous.

- (a) sand at the beach
- (b) chunky peanut butter
- (c) "rocky road" ice cream
- (d) gasoline

3.

If it takes 551 J of energy to warm 7.40 g of water by 13°C, how much heat would be needed to warm 7.40 g of water by 61°C?

4.

If 72.4 kJ of heat is supplied to a 852 g block of metal, the temperature of the metal increases by 9.7°C. Calculate the specific heat capacity of the metal in J/g·°C.

5.

A 25.0 g sample of pure iron at 85.0°C is dropped into 75 g of water at 10.0°C. What is the final temperature of water-iron mixture.

6.

Describe the results of a physical change.

A physical change involves the change just in the physical body of the substance without changing its composition.

Which of the following are examples of physical change?

7.

Describe the results of a chemical change.

Chemical reactions cause chemical changes, but does not change physically, such as liquid to gas.

Which of the following are indicators of chemical change?

8.

Which of the following are examples of substances?

Explain why each is a substance. (3.1)

9.

Identify each of the following as an extensive or intensive physical property. (3.1)

- (a) melting point
- (b) mass
- (c) density
- (d) length

10.

Which of the following indicators suggest that a chemical change has probably taken place? (Select all that apply.) (3.2)

11.

Which of the following are characteristics of a mixture? (3.3)

12.

Express the following in scientific notation. (Chapter 2)

- (a) 6500
- (b) 2373
- (c) 0.9613
- (d) 759
- (e) 74700
- (f) 0.002013

13.

Convert 49°C to Kelvins. (Chapter 2)

14.

A heterogeneous mixture

15.

What does the metric prefix milli mean?

16.

How many kilometers are in 6,250,000.0 centimeters?

17.

The concept of _____ indicates the ability of a person to measure consistently.

18.

Classify the following as homogenous mixtures, heterogenous mixtures, elements or compounds.

- (a) salt water
- (b) salad dressing
- (c) iron
- (d) water
- (e) shampoo