

## Density and conversions (Homework)

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1.

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

2.

Convert 709.5 meters to centimeters.

3.

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

4.

Select the correct number of significant figures for .00698.

5.

Calculate the value of the following in exponential form, using standard scientific or "e" notation (for example,  $105 = 1.05e2$ ). Enter the correct number of significant figures.

$(2.50e2 \text{ cm})(3.555e-4 \text{ cm})$

6.

Convert  $28.0^{\circ}\text{C}$  to K. Enter the correct number of significant figures.

7.

Select the correct number of significant figures for 0.00007 g of radium.

8.

25 g of a radioactive substance is left after 16 days of decay. What is the half life of the substance if the original sample had a mass of 100 g?

9.

How much water will overflow from a basin, if a solid block of glass, with a volume of exactly  $101 \text{ in.}^3$ , is placed in a basin of water that is full to the brim?

10.

For the masses and volumes indicated, calculate the density in grams per cubic centimeter.

(a) mass =  $145.3 \text{ g}$ ; volume =  $6.7 \text{ cm}^3$

(b) mass =  $19670. \text{ g}$ ; volume =  $0.49 \text{ m}^3$

(c) mass =  $0.0221 \text{ kg}$ ; volume =  $12.4 \text{ mL}$

(d) mass =  $1.81 \text{ g}$ ; volume =  $0.10 \text{ m}^3$

11.

The density of pure silver is  $10.5 \text{ g/cm}^3$  at  $20^{\circ}\text{C}$ . If  $5.85 \text{ g}$  of pure silver pellets is added to a graduated cylinder containing  $14.1 \text{ mL}$  of water, to what volume level will the water in the cylinder

rise?

12.

A sample containing 32.93 g of metal pellets is poured into a graduated cylinder initially containing 14.3 mL of water, causing the water level in the cylinder to rise to 18.5 mL. Calculate the density of the metal.