How many significant figures are there in each of the following values?

a. 6.07×10^{-15}

e. 463.8052

b. 0.003840

f. 300

c. 17.00

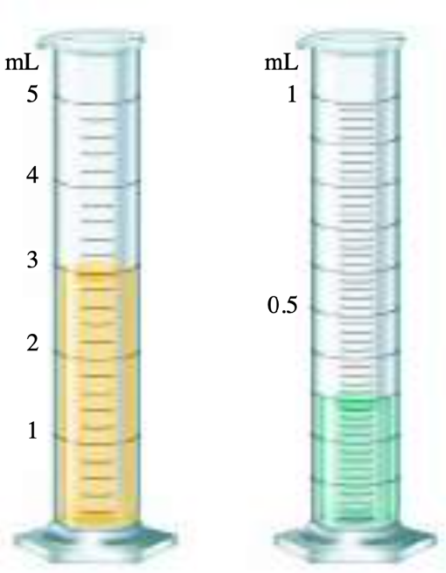
g. 301

d. $8\,X\,10^{8}$

h. 300.

You have liquid in each graduated cylinder shown:

You then add both samples to a beaker. How would you write the number describing the total volume? What limits the precision of this number?



Evaluate each of the following and write the answer to the appropriate number of significant figures.

a) 212.2 + 26.7 + 402.0

b) 1.0028+ 0.221 +0.10337

c) 52.331 + 26.01 -0.9981

d) $2.01 \times 10^2 + 3.014 \times 10^3$

e) 7.255-6.8350

Diamonds are measured in carats, and 1 carat = 0.200 g. The density of diamond is $3.51\ \mathrm{g/cm^3}$.

a. What is the volume of a 5.0-carat diamond?

b. What is the mass in carats of a diamond measuring 2.8 mL?

*In each of the following pairs, which has **the greater mass**? (See Table 1.5.)*

a) 1.0 kg of feathers or 1.0 kg of lead

b) 1.0 mL of mercury or 1.0 mL of water

c) 19.3 mL of water or 1.00 mL of gold

d) 75 mL of copper or 1.0 L of benzene

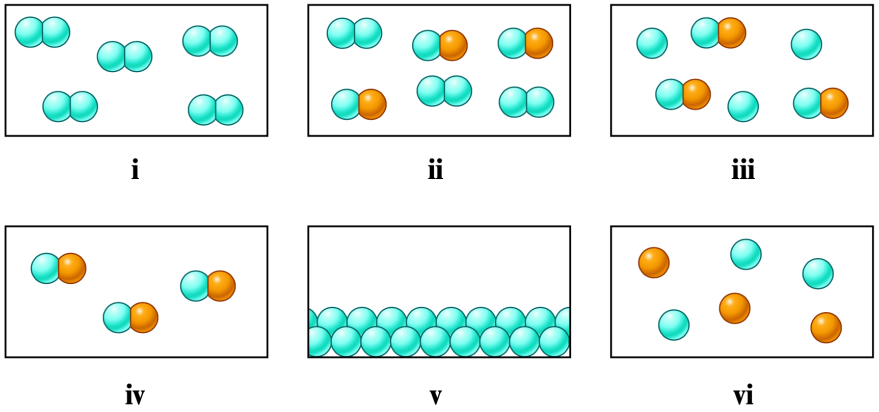
*In each of the following pairs, which has **the greater volume**?*

a) 1.0 kg of feathers or 1.0 kg of lead

b) 100 g of gold or 100 g of water

c) 1.0 L of copper or 1.0 L of mercury

Match each description below with the following microscopic pictures. More than one picture may fit each description. A picture may be used more than once or not used at all.



a) a gaseous compound

b) a mixture of two gaseous elements

c) a solid element

d) a mixture of a gaseous element and a gaseous compound

Classify each of the following as a mixture or a pure substance.

a) water

b) blood

c) the oceans

d) iron

e) brass

f) uranium

g) wine

h) leather

i) table salt

Of the pure substances, which are elements, and which are compounds?