

A toddler in Italy visits the family doctor. The nurse takes the child's temperature, which reads 38.8°C .

(a) Convert this temperature to $^{\circ}\text{F}$.

(b) If 98.6°F is considered normal, does the child have a fever?

Make the following conversions and include an equation for each one:

(a) 162°F to $^{\circ}\text{C}$

(c) -18°C to $^{\circ}\text{F}$

(b) 0.0°F to K

(d) 212 K to $^{\circ}\text{C}$

The formula for vitamin B_{12} is $\text{C}_{63}\text{H}_{88}\text{CoN}_{14}\text{O}_{14}\text{P}$.

(a) How many atoms make up one molecule of vitamin B_{12} ?

(b) What percentage of the total atoms are carbon?

(c) What fraction of the total atoms are metallic?

These formulas look similar but represent different things.

8 S S_8

Compare and contrast them. How are they alike? How are they different?

Determine whether each of the following is a pure substance or a mixture:

- (a) hot tea
- (b) beach sand
- (c) carbon dioxide
- (d) cement
- (e) zinc
- (f) vinegar

How many hydrogen atoms are represented in each formula?

- (a) $\text{Al}(\text{C}_2\text{H}_3\text{O}_2)_3$
- (c) NH_4OH

- (b) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
- (d) $\text{C}_6\text{H}_5\text{CH}_2\text{CH}_3$

Classify each material as an element, a compound, or a mixture:

- (a) xenon
- (b) sugar
- (c) crude oil
- (d) nitric acid

- (a) carbon monoxide
- (b) iced tea
- (c) mouthwash
- (d) nickel

Classify each of the following as an element, a compound, or a mixture:

