Table 6 Rules for Rounding in Calculations

What to do	When to do it	Examples
round down	• whenever the digit following the last significant figure is a 0, 1, 2, 3, or 4	30.24 becomes 30.2
	• if the last significant figure is an even number and the next digit is a 5, with no other nonzero digits	32.25 becomes 32.2 32.65000 becomes 32.6
round up	• whenever the digit following the last significant figure is a 6, 7, 8, or 9	22.49 becomes 22.5
	• if the digit following the last significant figure is a 5 followed by a nonzero digit	54.7511 becomes 54.8
	• if the last significant figure is an odd number and the next digit is a 5, with no other nonzero digits	54.75 becomes 54.8 79.3500 becomes 79.4

SECTION REVIEW

1. Which SI units would you use for the following measurements?

a. the length of a swimming pool
b. the mass of the water in the pool
c. the time it takes a swimmer to swim a lap

2. Express the following measurements as indicated.

a. 6.20 mg in kilograms
b. 3×10^{-9} s in milliseconds
c. 88.0 km in meters

3. Perform these calculations, following the rules for significant figures.

a. $26 \times 0.02584 = ?$
b. $15.3 \div 1.1 = ?$
c. $782.45 - 3.5328 = ?$
d. $63.258 + 734.2 = ?$

4. Critical Thinking The following students measure the density of a piece of lead three times. The density of lead is actually 11.34 g/cm^3. Considering all of the results, which person's results were accurate? Which were precise? Were any both accurate and precise?

a. Rachel: 11.32 g/cm^3, 11.35 g/cm^3, 11.33 g/cm^3
b. Daniel: 11.43 g/cm^3, 11.44 g/cm^3, 11.42 g/cm^3
c. Leah: 11.55 g/cm^3, 11.34 g/cm^3, 11.04 g/cm^3