Problem 78

Determine the number of significant figures in the following measurements: (a) 0.0009, (b) 15,450.0, (c) 6×10^3, (d) 87.990, and (e) 30.42.

Solution

Non-zero numbers are significant. Zeros are significant only if they trail after the decimal place or if they are between two other significant digits.

Part (a)

$$0.000\underline{9}$$

This measurement only has 1 significant figure.

Part (b)

$$\underline{15}, \underline{450}.\underline{0}$$

This measurement has 6 significant figures.

Part (c)

$$\underline{6} \times 10^3$$

This measurement only has 1 significant figure.

Part (d)

$$\underline{87}.\underline{990}$$

This measurement has 5 significant figures.

Part (e)

$$\underline{30}.\underline{42}$$

This measurement has 4 significant figures.