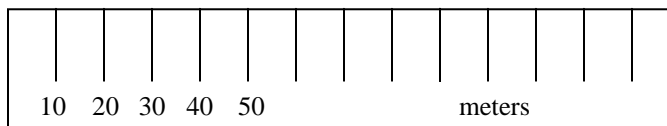


Worksheet—Significant Figures and Measurement

A measurement is given. Part 1: Draw several markings on a ruler (for length) or graduated cylinder (for volume) or thermometer (for temperature) that were used to get the measurement. Part 2: State what place the marking indicates. Part 3: State the number of significant figures in the measurement.

Example: 15 m

ANSWER:



Part 1: See ruler above.

Part 2: Marked to the 10s place (ones place is estimated)

Part 3: 15 m is 2 significant figures

a. 5.04 mL

b. 54 $\bar{0}0$ cm

c. 35.300 degrees Celsius

d. 1000 L

Worksheet—Significant Figures and Scientific Notation

1. How many significant figures are in:
 - a. 1.204×10^{-2} g
 - b. 3.160×10^8 Å
 - c. 0.00281 g
 - d. 810 ml
 - e. 12.82 liters
 - f. 3.19×10^{15} atoms
 - g. 4.300×10^{-6} cm
 - h. 0.00641 g
 - i. 8.2354×10^{-19} m
 - j. 0.0559 g
 - k. 2.92×10^2 g
 - l. 4.1 liters
 - m. 0.0002 cm
 - n. $45\bar{0}$ g

2. Convert the standard (*decimal*) notation numbers above into standard *scientific* notation. Remember to carry all significant figures into the coefficient.

3. Assign \pm error readings to the following measurements (hint—which digit has uncertainty?) Assume units of 1 (0.1, 0.01, etc...)
 - a. 3.412 g
 - b. 45 ml
 - c. 0.00498 g
 - d. 8.2 cm
 - e. 559 L
 - f. 1.00×10^2 m