Example: Label all marks on the following scales. The units are inches.
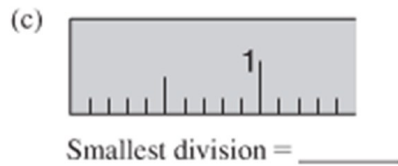
(a)

Smallest division = _____

(b)

Smallest division = _____

(c)

Smallest division = _____

(d)

Smallest division = _____
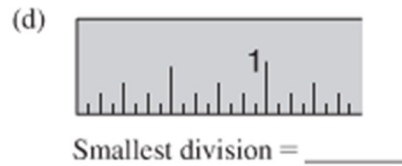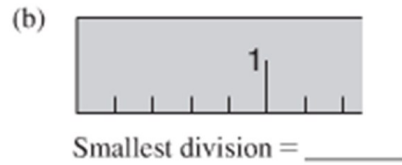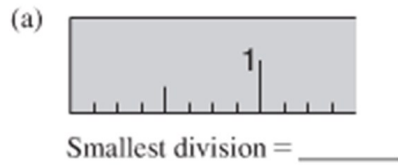
Example: Find the dimensions given on the following inch rules. Express all fractions in lowest terms.

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

g. _____

h. _____

1

Unity Fractions: A relationship between two units of measure. You can form a ratio in two differ-ent ways that has a value of 1.
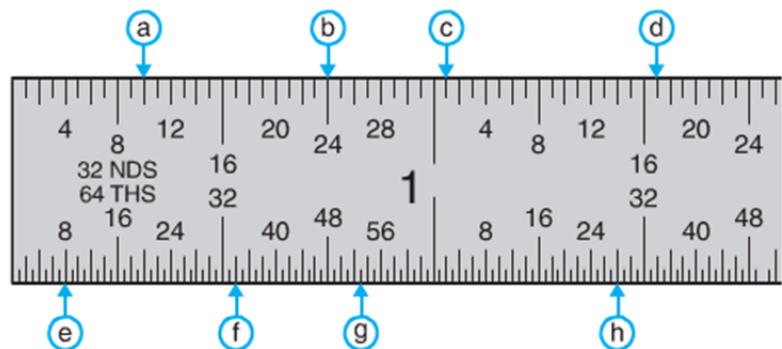
$$\frac{12in}{1ft}, \quad \frac{1ft}{12in}, \quad \frac{3ft}{1yd}, \quad \frac{1mi}{5,280ft}$$

Unit Conversion:
1. Create a "plan" by looking at conversion tables. Find the unity fraction(s) that link the two units.
2. Make a fraction fo the given unit
3. Multiply the original number by one (or more) of the unity fractions. This allows you to cancel out the units you do not want in your answer.
4. Multiply/divide the numerical part.
5. Cancel out units and attach to the numerical part.

$$A \times \frac{B}{C} = \frac{A}{1} \times \frac{B}{C} = \frac{A \times B}{C}$$

This means This

Example: How many inches are in 2.1 miles?

Plan
miles
Feet
inches

$$\frac{2.1 \text{ miles}}{1} \cdot \frac{5280 \text{ ft}}{1 \text{ miles}} \cdot \frac{12 \text{ in}}{1 \text{ ft}} = 133056 \text{ in}$$
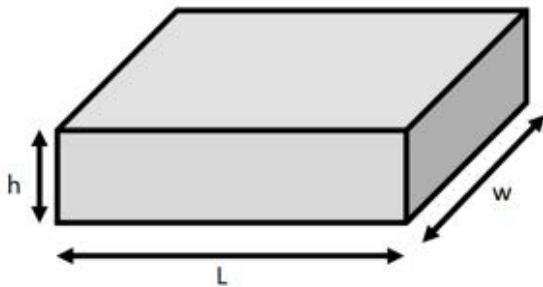
Practice:
1 year = _____ minutes

10 ft = _____ cm

1.3 miles = _____ meters

Practical Problems:

1a. Measure the length, width, and height of your piece of Aluminum 6061 in inches.

Inches

length = _____

width = _____

height = _____

b. Take each measurement and convert it from inches to centimeters. *(You must show your work for full-credit.)*

Inches	Centimeters
length =	
width =	
height =	

c. Measure the length, width, and height of your piece of Aluminum 6061 in centimeters.
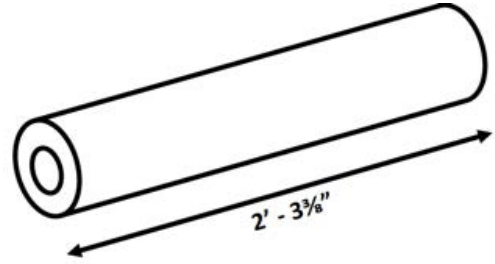
Centimeters

length = _____

width = _____

height = _____

d. Was there some difference in the measured length and calculated? If so why?

2. Express the length of this pipe in inches.

2' - 3⅜"

4. Researchers have recently "cracked the code" of the Aztec system of measurement. Their basic unit of length was the rod, which is approximately 8 ft. Other units are defined in terms of the rod (rd) on the right. Use these definitions to calculate:

   a. The numbers of rods in 35 hearts

5 hands	=	3	rods
2 arrows	=	1	rod
5 hearts	=	2	rods
3 arms	=	1	rod
5 bones	=	1	rod

   b. The number of bones in 4 arrows