Imperial System of Measurement

-The Imperial System is a system of measurement in which all units are based on British units.
- It is still used in the United States
- It is commonly used in construction and cooking

Common Imperial Units
Length: Inch (in or "), foot (ft or '), yard (yd), mile (mi)

i.e. 6 inches can be written as 6 in. or 6"
10 feet can be written as 10 ft. or 10'
5 feet 8 inches can be written as 5'8"

Volume: Fluid ounce (fl oz), cup (c), pint (pt), gallon (gal), teaspoon (tsp), tablespoon (tbsp), quart (qt)

Weight: Ounce (oz), pound (lb), ton (tn)

Temperature: Degree Fahrenheit (°F)

Common Conversions within the Imperial System

Length	Volume	Weight
12 inches = 1 foot 3 feet = 1 yard 5280 feet = 1 mile	3 teaspoons = 1 tablespoon 8 fluid ounces = 1 cup 2 cups = 1 pint 2 pints = 1 quart 4 quarts = 1 gallon	16 ounces = 1 pound 2000 pounds = 1 ton

Ex/ Brian had a summer job at Wanson Lumber. He frequently had to fill orders for 2" x 4"'s.
a) What is a 2 x 4?
b) What unit of measure are they using?
c) How many inches are in a foot?
d) How many feet are in a yard?
e) Do you know what fractions of an inch are on most standard rulers and tape measures?

a) A type (size) of board
b) inches
c) 12
d) 3
e) 1, 1/2, 1/4, 1/8, 1/16

Ex/ Convert the following from feet to inches:
a) 7 feet
b) 5'4"
c) 6'2"

a) 7(12)
= 84 inches
1 ft = 12 in

b) 5(12) + 4
add on inches
do feet seperately
= 64 inches

c) 6(12) + 2
= 74 inches

Ex/ Convert the following from inches to feet:

a) 51"

$51 \div 12 = 4.25$

4 feet

to figure out inches

$0.25(12) = 3$

$\therefore 4'3"$

b) 27"

$27 \div 12 = 2.25$

$.25(12) = 3$

$\therefore 2'3"$

Ex/ Cindy works at Vienna Bakery. She is an apprentice baker.

a) What Imperial units of measurement does she use?

b) A cake recipe calls for 6 pints of blue berry juice. How many quarts is this?

c) A batch of rye bread calls for 20 pints of water. How many gallons is this?

set up a proportion and cross multiply

a) Volume: tsp, tbsp, cup, pints, quarts, gallons

b) 2 pt = 1 qt (×3)

6 p = 3 qt

c) 20 pints = 10 qt

what we want: $\frac{10 \text{ qt}}{x \text{ gal}} = \frac{4 \text{ qt}}{1 \text{ gal}}$ (what we know)

$4x = 10$

$x = 2.5 \text{ gal}$

Ex/ Mark owns a restaurant. He bought a 50-gallon drum of ketchup at a wholesale store. For the tables he has 1 pint squeeze bottles that he fills with ketchup. How many bottles can Mark fill from this drum?

$\frac{50 \text{ gal}}{x \text{ qt}} = \frac{1 \text{ gal}}{4 \text{ qt}}$

$x = 200 \text{ qt}$

$\frac{200 \text{ qt}}{x \text{ pt}} = \frac{1 \text{ qt}}{2 \text{ pt}}$

$x = 400 \text{ pt}$

$\therefore$ He can fill 400 bottles

Ex/ Lana works at Maier Hardware. She is in charge of stocking the fastener department (nails, screws, bolts, etc).

a) What units would you use to measure nail weight?

b) How many ounces are in a pound?

c) How many tons are in a pound?

d) If Lana sells 5 lbs of 1/4" nails, how many ounces did she sell?

e) If she has 8 ounces of 3-inch Ardox nails, how many pounds is this?

a) ounces, pounds

b) 16 oz = 1 lb

c) $\frac{1 \text{ tn}}{2000} = \frac{2000 \text{ lb}}{2000}$

0.0005 tn = 1 lb

d) $5(16) = 80 \text{ oz}$

e) $\frac{8 \text{ oz}}{x \text{ lb}} = \frac{16 \text{ oz}}{1 \text{ lb}}$

$16x = 8$

$x = 0.5 \text{ lb}$

Ex/ Convert the following measures:

a) 60 yd = 180 ft

Can always use a proportion

$\frac{60 \text{ yd}}{x \text{ ft}} = \frac{1 \text{ yd}}{3 \text{ ft}}$

b) 72 in = 6 ft

$\frac{72 \text{ in}}{x \text{ ft}} = \frac{12 \text{ in}}{1 \text{ ft}}$

$12x = 72$

c) 9800 ft = 1.86 mi

$\frac{9800\text{ ft}}{x\text{ mi}} = \frac{5280}{1\text{ mi}}$

$5280x = 9800$

d) 8 qt = 2 gal

$\frac{8\text{ qt}}{x\text{ gal}} = \frac{4\text{ qt}}{1\text{ gal}}$

$4x = 8$

e) 3 lbs = 48 oz

$\frac{3\text{ lbs}}{x\text{ oz}} = \frac{1\text{ lb}}{16\text{ oz}}$

$x = 48$

f) 3 c = 24 fl oz

$\frac{3\text{ c}}{x\text{ fl oz}} = \frac{1\text{ c}}{8\text{ fl oz}}$

$x = 24$

g) 6 c = 3 pt

$\frac{6\text{ c}}{x\text{ pt}} = \frac{2\text{ c}}{1\text{ pt}}$

$2x = 6$

h) 5000 lbs = 2.5 ton

$\frac{5000\text{ lbs}}{x\text{ tn}} = \frac{2000\text{ lbs}}{1\text{ tn}}$

$2000x = 5000$

i) 5 gallons = 80 cups

$\frac{5\text{ gal}}{x\text{ qt}} = \frac{1\text{ gal}}{4\text{ qt}}$

$x = 20\text{ qt}$

$\frac{20\text{ qt}}{x\text{ pt}} = \frac{1\text{ qt}}{2\text{ pt}}$

$x = 40\text{ pt}$

$\frac{40\text{ pt}}{x\text{ c}} = \frac{1\text{ pt}}{2\text{ c}}$

$x = 80$

j) 4 miles = 253,440 inches

$\frac{4\text{ mi}}{x\text{ ft}} = \frac{1\text{ mi}}{5280\text{ ft}}$

$x = 21120\text{ ft}$

$\frac{21120\text{ ft}}{x\text{ in}} = \frac{1\text{ ft}}{12\text{ in}}$

$x = 253440$

Practice: Handout - Imperial Measure