MAP 4C

Unit 2:

MEASUREMENT and GEOMETRY

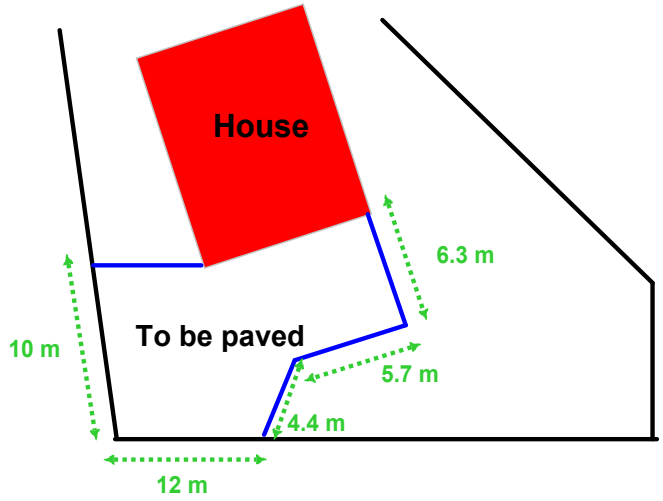
Imperial Measurements

Learning Goals

- identify the uses of different measurements
- identify imperial measurements
- identify symbols imperial measurements
- convert between different units of measurements

This is a picture of my backyard. I want to have paving stones in the blue region. Measurements are given on the diagram. Paving stones are $5.50/sq ft. How much will it cost me to buy the stones?

DO NOT calculate anything.
Make a list of things / steps I need to do to figure out how much the stones will cost.



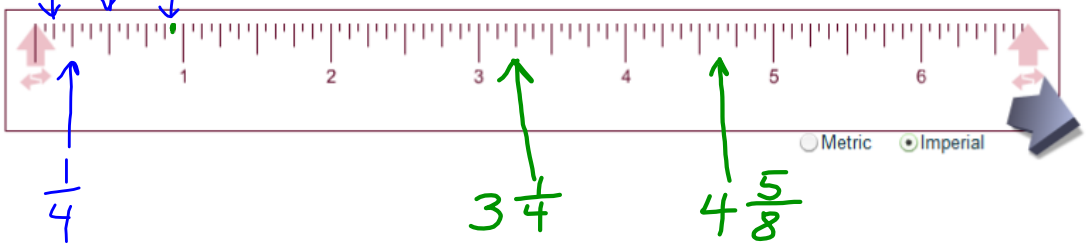
List units of IMPERIAL measurements with their symbols.

Length	Volume	Weight
inches	gallons	pounds
feet	pint	ounces
yards	ounce	stone
miles		tons

Imperial Measurements

$\frac{1}{2} = \frac{2}{4} = \frac{4}{8} = \frac{8}{16}$

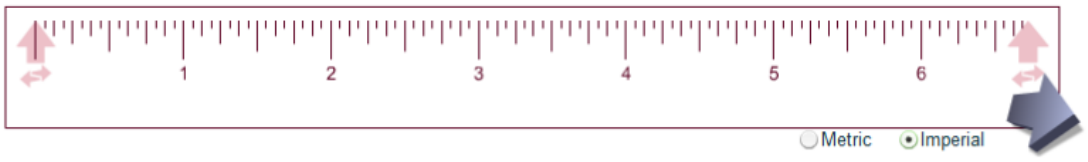
$\frac{1}{8}$ $\frac{1}{2}$ $\frac{15}{16}$



$\frac{1}{4}$ $3\frac{1}{4}$ $4\frac{5}{8}$

$\frac{9}{16}$ $1\frac{1}{16}$ $3\frac{1}{8}$ $4\frac{9}{16}$

Imperial Measurements



Conversions of Imperial Measurements

Length

1 foot = 12 inches
1 yard = 3 feet
1 mile = 1760 yards

Volume

1 gallon = 4 quarts
1 quart = 2 pints
1 pint = 16 ounces

Mass

1 ton = 2000 pounds
1 pound = 16 ounces

Convert

67 in = 5 ft 7 in

$\frac{67}{12} = 5.58$

$5(12) = 60$, $+7$

79 in = 6 ft 7 in

$\frac{79}{12} = 6.58$

$6(12) = 72$

139 in = 11 ft 7 in

$\frac{139}{12} = 11.58$

$11(12) = 132$

42 in = 3 ft 6 in

4 ft 3 in = 51 in

$4(12) + 3$
$= 48 + 3$
$= 51$

8 ft 5 in = 101 in

3 ft 9 in = 45 in

5 ft 6 in = 66 in

4 yd 3 in = 147 in

$4(3)(12) + 3$
$= 144 + 3$
$= 147$

5 yd 4 ft 3 in = 231 in

$5(3)(12) + 4(12) + 3$
$= 180 + 48 + 3$
$= 231$

2 yd 3 ft 4 in = 112 in

$2(3)(12) + 3(12) + 4$
$= 72 + 36 + 4$
$= 112$

1 mile 5 yd 4 ft = 5299 ft

$1(1760)(3) + 5(3) + 4$
$= 5280 + 15 + 4$
$= 5299$

Measure the items to fill out the chart.

Item	Width (inches)	Length (inches)
iPad		
Desk		
Tile on floor		
Pencil		
Pencil case		
Binder		

Item	Width (ft and inches)	Convert to inches	Length (ft and inches)	Convert to inches
White board				
Window				
Door				

1. How many binders would you need side by side to go from one end of the classroom to the other (length) ?

$$\frac{(\#\text{ of tiles})(12)}{\text{length of binder}} = \frac{34(12)}{11\frac{1}{2}} = 35.4$$

2. How many desks would fit side by side to go from the front to the back of the classroom (width) ?

Seatwork - Handout

4. If there are 12 inches in a foot, 3 feet in a yard, and 36 inches in a yard, then

a) 120 inches = 10 feet

b) 450 feet = 150 yards

c) 4 feet = 48 inches

d) 540 inches = 45 feet

e) 72 yards = 216 feet

f) 250 yards = 9000 inches

→ you can also use a ratio.

$$\frac{1\text{ ft}}{12\text{ in}} = \frac{x\text{ ft}}{120\text{ in}}$$

cross multiply

$$120 = 12x$$

$$10 = x$$

5. Answer the following questions using imperial measurements. Show your steps.

a) If Katie is five feet three inches tall and Bill is six and a half feet tall. What is the difference in their heights in inches?

$5'3'' = 5(12)+3$

$= 60+3$

$= 63$

$6'6'' = 6(12)+6$

$= 78$

$78-63 = 15$ $\therefore 15$ in

b) A new baby is born with a weight of 5 and $\frac{3}{4}$ pounds. What is the baby's weight in ounces?

$5\frac{3}{4}(16)$

$= 92$

$\therefore 92$ ounces

c) If a truck weighs 4000 pounds, how many tons is the truck?

$\frac{4000}{2000} = 2$

$\therefore 2$ tons

d) You have a garage that is 4 and 1/2 yards from front to back. You are contemplating the purchase of a new pickup truck, which is 12 ft. and 5 inches long. Is this a wise?

$4.5(3)(12) = 162''$

$12(12)+5 = 149'$ $\therefore$ yes

e) A recipe calls for $\frac{1}{2}$ a pint of milk. How many fluid ounces would you need?

$0.5(16) = 8$

$\therefore 8$ ounces

f) If you went to the grocery store and bought two gallons of orange juice, how many quarts would you have?

$2(4) = 8$

$\therefore 8$ quarts