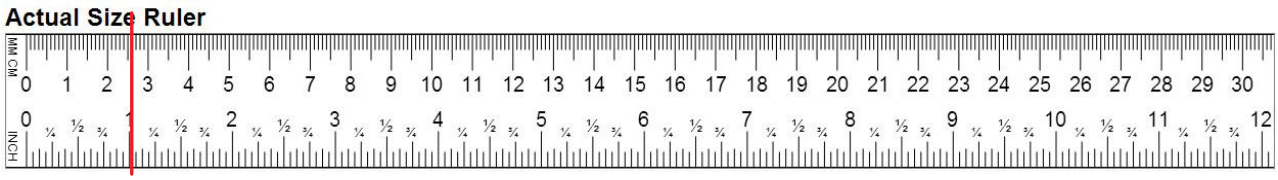
1.3 - Converting Between Imperial and SI

February 5, 2017 9:06 PM

Now that we have learned how to convert with in a measuring system, we are going to learn how to convert between Measuring systems.

Look at your ruler and see if you can create an equivalency relation for inches and centimeters.



1in = 2.54cm

These are the accepted conversations between Imperial and SI units. They should also be found in your yellow formula sheets.

Imperial to SI	SI to Imperial
1in. = 2.54 cm	1mm = 0.0394 in
1ft = 30.48cm	1cm = 0.3937 in
1yd = 0.9144m	1m = 3.281ft
1mi = 1.609km	1m = 1.094yd
	1km = 0.6214mi

Examples:
Convert the following

4.5 in to cm

$1in = 2.54cm$

$4.5\,in \times \frac{2.54cm}{1in} = 11.43cm$

$1cm = 0.3937in$

$4.5\,in \times \frac{1cm}{0.3937in} = 11.43cm$

13 mm to in

$1mm = 0.0394in$

$13\,mm \times \frac{0.0394in}{1mm} = 0.512in$

5.8 km to yd

$1km = 0.6214mi$

$1mi = 1760yd$

$5.8\,km \times \frac{0.6214mi}{1km} = 3.604mi$

$1km = 0.6214mi$

$1mi = 1760yd$

km → mi → yd

$1km = 0.6214mi$

$5.8km \times \frac{0.6214mi}{1km} = 3.604mi$

$3.604mi \times \frac{1760yd}{1mi} = 6343yd$

Mr. Horncastle likes to use old bottles to store his loose change. Which coins fit in the bottles?

fit
- ✓ A penny has a diameter of 0.75in
- ✓ A dime has a diameter of 0.705in
- ✓ A nickel has a diameter of 0.835in

don't
- ✗ A quarter has a diameter of 0.07958ft = 0.955in
- ✗ A loonie has a diameter of 26.5mm. = 1.04in

The Bottles opening is 0.023m. = 0.906in

$1ft = 12in$

$0.07958ft \times \frac{12in}{1ft} = 0.955in$

$1in = 0.0394mm$

$26.5mm \times \frac{1in}{0.0394mm} = 1.04in$

$1m = 3.281ft$

$0.023m \times \frac{3.281ft}{1m} = 0.075463ft$

$1ft = 12in$

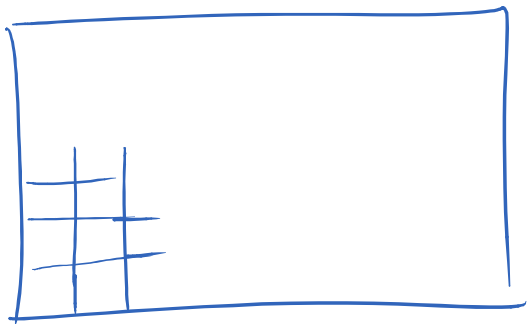
$0.075463ft \times \frac{12in}{1ft} = 0.906in$

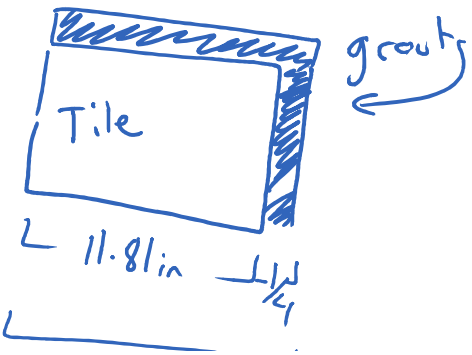
Mr. Horncastle has decided to retile his kitchen. The stone he wants to use is 30cm by 30cm and he wants to use a 1/4" grout line. If his kitchen floor space is 10ft x 8ft. How many tiles will he need? (assuming he doesn't break any, which he most certainly will, at least 10% of the tiles)

$1in = 2.54cm$

Draw a picture

$30cm \times \frac{1in}{2.54cm} = 11.81in$





10ft = 120in

1ft = 12in

$10\text{ft} \times \frac{12\text{in}}{1\text{ft}} = 120\text{in}$

$8\text{ft} \times \frac{12\text{in}}{1\text{ft}} = 96\text{in}$

11.81in + 1 1/4

11.81 + 0.25

12.06in

both length and width of the tile plus grout

$\frac{120\text{in}}{12.06\text{in}} = 9.95 \text{ tiles} = 10 \text{ tiles}$

$\frac{96\text{in}}{12.06\text{in}} = 7.96 \text{ tiles} = 8 \text{ tiles}$

Total tiles = 10 × 8 = 80 tiles

Homework
Ch:1.3 Page 42
1-15odd