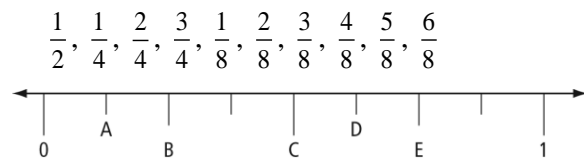


## 1.2 Warm-Up

1. What is your height, in feet and inches? in cm?

2. A line has been divided into equal parts. Match each of the letters to one or more of the following fractions.



3. Convert each mixed number to an improper fraction.

a)  $2\frac{3}{8}$

b)  $1\frac{7}{16}$

c)  $3\frac{3}{4}$

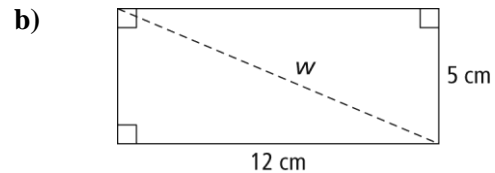
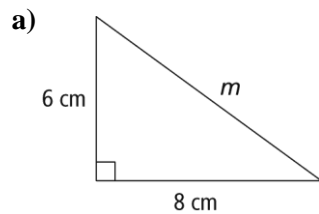
4. Determine each product without using a calculator.

a)  $\left(\frac{7}{3}\right)(15)$

b)  $\left(2\frac{5}{12}\right)(6)$

c)  $\left(7\frac{1}{2}\right)(8)$

5. What is the length of each unknown side?



1.2 Imperial Measurement

Before beginning to implement the SI system of measurement in 1970, Canada used the Imperial System of measurement. The United States continues to use the Imperial System. There are still remnants of this system that Canadians still use today. What are some examples?

feet and inches for length  
pounds for weight.  
ounces

cups and in cooking  
tablespoons

The main units of measure in the Imperial system are the inch, the foot, the yard and the mile. Here is a chart that lists the names, abbreviations/symbols and any equivalent ratios for each unit.

5 feet 8 inches  
5' 8"  
5 ft 8 in

Unit	Abbreviation/Symbol	Equivalent Ratio(s)
Inch	in. or "	
Foot	ft or '	1 ft = 12 in.
Yard	yd	1 yd = 3 ft or 36 in.
Mile	mi	1 mi = 1760 yd or 5280 ft

As with SI, Imperial measurements can be estimated using referents or measured exactly using the same types of instruments as before (ex. ruler, tape measure, caliper, etc).

$$1 \text{ ft} = 12 \text{ in}$$

$$1 \text{ mi} = 5280 \text{ ft}$$

Examples:

1) Convert the following units:

a)  $5.5 \text{ ft} = \underline{\hspace{2cm}} \text{ in.}$

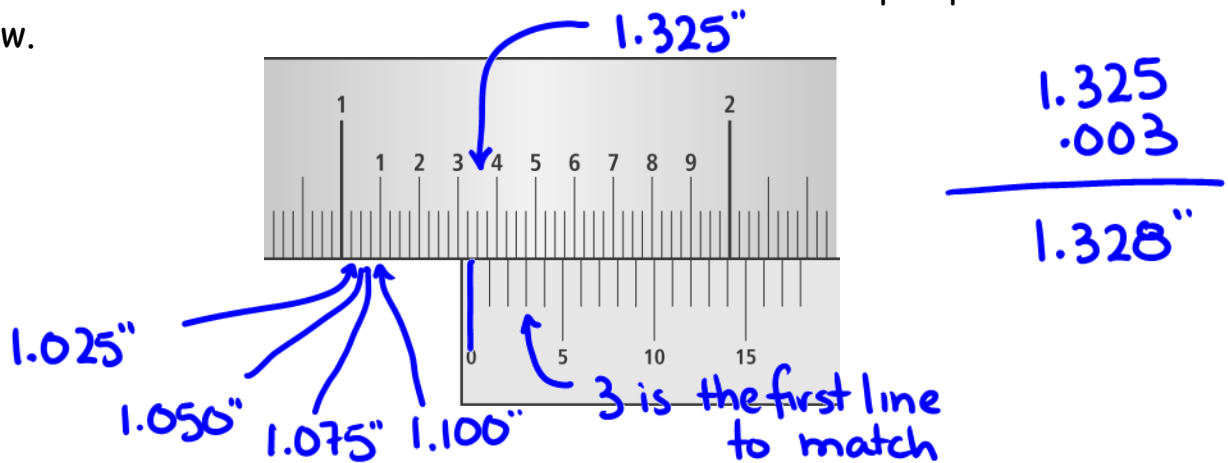
b)  $14\,342 \text{ ft} = \underline{\hspace{2cm}} \text{ mi}$

$$5.5 \text{ ft} \times \frac{12 \text{ in}}{1 \text{ ft}} = 66 \text{ in}$$

$$14\,342 \text{ ft} \times \frac{1 \text{ mi}}{5280 \text{ ft}} = 2.7 \text{ mi}$$

$$\begin{aligned} 6'4'' &= 6 \text{ ft} \times \frac{12 \text{ in}}{1 \text{ ft}} + 4 \text{ in} \\ &= 76 \text{ in} \end{aligned}$$

2) Read the measurement indicated on the Vernier caliper pictured below.



3) The following diagram of a horse has a scale of 1:25. Calculate the height of the horse to the nearest inch (a horse's height is measured at the withers, or front shoulder).

1 cm picture = 25 cm real  
1" picture = 25" real



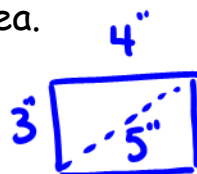
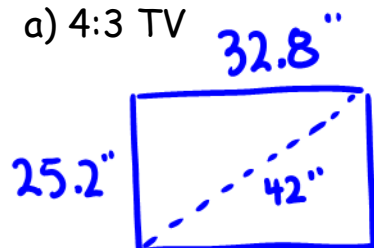
Height:  $193 \frac{3}{4}$  "

$7 \frac{3}{4}$  " picture  $\times \frac{25 \text{ "real life}}{1 \text{ "picture}}$

16ft  $1 \frac{3}{4}$  "  
16'  $1 \frac{3}{4}$  "

3) A family wants to purchase a 42" television. They are undecided as to whether they should purchase a standard 4:3 TV or an HDTV that has a 16:9 screen ratio. Keeping in mind that the size of a screen is the measure of the diagonal, determine which of these two TV screen ratios would give the largest viewing area.

a) 4:3 TV

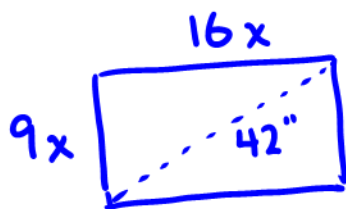


$$\frac{42}{5} = 8.4$$

$$A = 25.2 \times 32.8$$

$$A = 826.6 \text{ in}^2$$

b) 16:9 TV



$$(9x)^2 + (16x)^2 = (42)^2$$

$$81x^2 + 256x^2 = 1764$$

$$337x^2 = 1764$$

$$\div 337 \quad \div 337$$

$$x^2 = 5.23$$

$$x = \sqrt{5.23}$$

$$x = 2.29$$

$$\text{top is } 16 \times 2.29 = 36.64"$$

$$\text{side is } 9 \times 2.29 = 20.61"$$

$$\text{Area} = 36.64 \times 20.61$$

$$= 755.2 \text{ in}^2$$

p29 #2, 3, 5, 7-11, 15-18

Quiz next class.