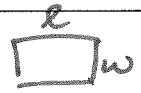
3.2 Converting Measurements

Name: key

Review: Working with Formulas

$A = lw$	$A = \frac{bh}{2}$	$A = \pi r^2$	$C = \pi d$ $C = 2\pi r$
A = area l = length w = width	b = base h = height	$\pi = 3.14$ r = radius $r^2 = r \times r$	C = circumference d = diameter $2\pi r = 2 \times \pi \times r$

Examples:



not $2 \times r$

Ex 1. Sumo is a traditional Japanese martial art. The area of a circular sumo ring, or dohyoi, is 16.26m^2. What is the radius of the ring?

$A = \pi r^2$

$\frac{16.26}{\pi} = \frac{\pi r^2}{\pi}$

$5.18 = r^2$

$\sqrt{5.18} = r$ $\quad r = 2.28\text{ m}$

Ex 2. Mark is delivering a load of goods from Vancouver, BC, to Seattle, WA, then in Seattle, she is picking up another load to deliver to Albuquerque, NM. The distance from Vancouver to Seattle is 220km and the distance from Seattle to Albuquerque is 1456 mi. The odometer in Mary's truck records distance in kilometres.

a. What is the total distance she will travel, in kilometers.

Vancouver → Seattle → Albuquerque

$1456\text{ miles} \times \frac{1.6\text{ km}}{1\text{ mile}} = 2329.6\text{ km}$

$220\text{ km} + 2329.6 = \boxed{2549.6\text{ km}}$

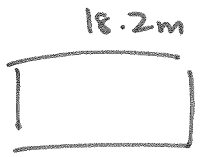
b. If her odometer read 154987 km when she left Seattle, what did it read when she left Vancouver.

$154987 - 220 = 154767\text{ km}$

c. What will her odometer read when she reaches Albuquerque?

$154987 + 2329.6 = 157316.6\text{ km}$

Ex 3. Rebecca is planning to install sod in her backyard, which is 18.2 m by 9.8 m. If sod costs$0.28/ft^2, how much will it cost to sod the backyard?



$A = lw$

$= 59.71 \times 32.15$

$= 1919.8\ ft^2$

$1919.8\ ft^2 \times \$0.28/ft^2$

$= \$537.5$

$18.2\ m \times \frac{100\ cm}{1\ m} = 1820\ cm \times \frac{1\ ft}{30.48\ cm} = 59.71\ ft$

$9.8\ m \times \frac{100\ cm}{1\ m} = 980\ cm \times \frac{1\ ft}{30.48\ cm} = 32.15\ ft$

Practice Your New Skills:

1. The area of a triangular sandbox is 3.2m^2 and has a base of 1.2m. What is the height?

2. Charlie drove from Calgary to Saskatoon, which is a distance of 620km. How far is this in miles.

3. A school custodian must mark off a field that is 150 ft by 85 ft. His tape measure is marked in metres. What are the dimensions of the field in metres (to the nearest tenth of a metre)

4. A room measures 12'8" by 10'9". Carpeting costs $45.98/m^2. A customer will have to purchase 10% more carpeting than floor area due to waste and he cannot purchase partial square metres. What is the minimum cost of carpeting?