

Example 1 Estimate and Measure Using SI Units

Estimate each distance using an appropriate referent. Then, measure each distance.

- the thickness of a CD case
- the height of the seat of a chair
- the width of this page

Example 2 Convert Between SI Units for Length

A newspaper reported the following measurements in different stories.

The distance from Earth to the moon is 38 440 300 000 cm.

A worm measures 0.0019 m.

- For each measurement, state a more appropriate SI unit. Justify your choice.
- Convert the given measurement to the more appropriate unit.

Example 3 Solve a Problem Involving Linear Measurement

Kyla buys an oversized wooden barrel. She cuts it in half to make a planter. She wants to place a metal band around the planter, 4 cm from the top, to hold the planter together.

- If the radius 4 cm from the top of the planter is 0.6 m, what length of band will she need? Express your answer to the nearest centimetre.
- If the bottom band of her planter is 1 m shorter than the top band, what is the radius of the planter at the bottom band? Express your answer to the nearest centimetre.
- What is the difference between the radius of the planter at the top band and the radius at the bottom band?
- Show how much the radius of any barrel increases if 1 m is added to the length of a band. State your answer as an exact value. Then, express your answer to the nearest centimetre.

1.1 SI Measurements

SI is the official system in Canada.

→ *Système International d'Unités*

ex 1. a) about the length of fingernail ∴

$$\text{approx. } 1 \text{ cm} = 0.8 \text{ cm}$$

b) approx. half the height of a knob

$$\therefore \text{about } 0.5 \text{ m} = 52 \text{ cm} \rightarrow 0.52 \text{ m}$$

c) About 2 fist width wide ∴ 2 dm / 20 cm

$$= 18.5 \text{ cm or } 1.85 \text{ dm}$$

Ex 2:

	Appropriate Unit	Conversion	KK
a) 38 440 300 000 cm	Km - largest unit	38 440.3 km	H
b) 0.0019 m	mm - smallest unit	1.9 mm	D

Ex 3

$$a) C = 2\pi r$$

$$C = 2\pi \cdot 0.6$$

$$\rightarrow C = 3.77 \text{ m}$$

$$C = 377 \text{ cm}$$

$$d) C = 2\pi r$$

$$C + 1 = 2\pi(r + x)$$

$$C + 1 = 2\pi r + 2\pi x$$

$$C + 1 = C + 2\pi x$$

$$-C \quad -C$$

$$b) 3.77 \text{ m} - 1 \text{ m} = 2.77 \text{ m}$$

$$a) C = 2\pi r$$

$$\frac{2.77}{2\pi} = \frac{2\pi r}{2\pi}$$

$$\frac{2.77}{2\pi} = r$$

$$44.1 \text{ cm} = r$$

$$1 = 2\pi x$$

$$\frac{1}{2\pi} = \frac{2\pi x}{2\pi}$$

$$\frac{1}{2\pi} = x$$

$$\frac{1}{2\pi}$$

$$0.159 \text{ m} = x$$

$$x = 15.9 \text{ cm}$$

$$= 16 \text{ cm}$$

$$c) 60 \text{ cm} - 44.1 \text{ cm} = 15.9 \text{ cm}$$

$$\text{approx. } 16 \text{ cm}$$

