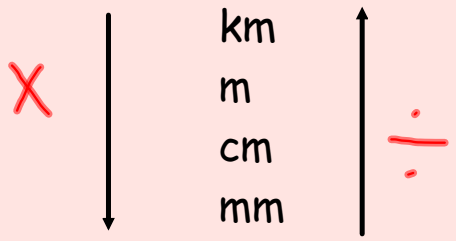
Section 1.2: The Metric System

Basic Metric Units for Length (conversion factors)

Metric Unit	Abbrev.	Referent
millimeter (smallest)	mm	Thickness of a dime, or fingernail
centimeter	cm	width of a fingernail, black keys on a piano, crayon, paper clip, AA battery, staple
meter	m	distance from a doorknob to the floor, width of a volleyball net, meter stick
kilometer	km	Distance walked in 15 minutes, lights to the bridge

1 cm = 10 mm
1 m = 100 cm
1 m = 1000 mm
1 km = 1000 m



1. Convert each length to the indicated units.

A) 1400 m to cm

$(1400 \times 100)\text{cm} = 140\,000\text{ cm}$

B) 7300 cm to m

$(7300 \div 100)\text{ m} = 73\text{ m}$

C) 4.6 km to m

$(4.6 \times 1000)\text{m} = 4600\text{m}$

D) 0.87 km to m

$(0.87 \times 1000)\text{m} = 870\text{ m}$

E) 3 920 000 cm to km

$(3\,920\,000 \div 100)\text{m} = 39\,200\text{ m}$

$(39200 \div 1000)\text{km} = 39.2\text{km}$

$39.2\text{km} = 39\text{km}\ 200\text{m}$

F) 180 mm = 18 cm = 0.18 m

$(180 \div 10)\text{cm} = 18\text{cm}$

$(18 \div 100)\text{m} = 0.18\text{ m}$

G) 2400 cm = _____ mm = _____ m

$(2400 \times 10)\text{mm} = 24\,000\text{ mm}$

$(2400 \div 100)\text{m} = 24\text{m}$

H) 34,006 m = _____ km = _____ cm = _____ mm

$(34\,006 \div 1000)\text{km} = 34.006\text{km}$

$(34\,006 \times 100)\text{cm} = 3\,400\,600\text{ cm}$

$(34\,006 \times 1000)\text{mm} = 34{,}006{,}000\text{ mm}$

2. Calculate the total cost in each situation.

a) A piece of metal pipe is 5m and 23 cm long. The price of the metal is $0.03 per cm.

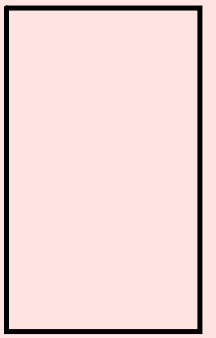
$5m = (5 \times 100)cm = 500cm$

$Length = 500cm + 23cm = 523cm$

$* \ Cost = \$0.03 \times 523$

$= \$15.69$

b) Find the cost to put trim around this painting if the price of the trimming is $4.85 per meter.



$0.85m$

$P = 2l + 2w$

$P = 2(2.3m) + 2(0.85m)$

$P = 4.6m + 1.7m$

$P = 6.3m$

$Cost = \$4.85 \times 7$

$= \$33.95$