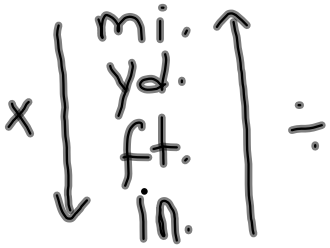
Put On Cue Card

Imperial

1 ft = 12 in
1 yd = 3 ft
1 mi = 1760 yd

1 yd = 36 in
1 mi = 5280 ft



Metric

1 km = 1000 m

1 m = 100 cm = 1000 mm

1 cm = 10 mm

SECTION 1.3: RELATING SI AND IMPERIAL UNITS

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SI Unit to Imperial Unit	Imperial Unit
1 mm ≐ 0.04 in. (4/100)	1 in. = 2.5 cm = 25 mm
1 cm ≐ 0.4 in. (4/10)	1 ft. ≐ 30 cm ≐ 0.3m
1 m ≐39 in.≐3ft. 3in.≐3.25 ft.	1 yd.≐90 cm ≐ 0.9 m
1km ≐ 0.6 mi. (6/10)	1 mi. ≐ 1.6 km

Examples

1. Make these conversions from Imperial to SI (metric) units.

A) 27 in. to cm

method 1
1 in. ≐ 2.5 cm
27 in ≐ (27 × 2.5) cm
≐ 67.5 cm

method 2: Proportion
1 in. = 2.5 cm
27 in = x cm
$\frac{1}{2.5} \doteq \frac{27}{x}$
x ≐ 2.5 × 27
≐ 67.5 cm

B) 7 ft. to cm

Method 1:
1 ft ≐ 30 cm
7 ft ≐ (7 × 30) cm
≐ 210 cm

method 2
1 ft ≐ 30 cm
7 ft ≐ x cm
$\frac{1}{30} \doteq \frac{7}{x}$
x = 7 × 30 = 210 cm

C) 6 ft. to m

1 ft = 0.3 m
6 ft = (6 × 0.3) m
6 ft = 1.8 m

D) 79 yd. to m

$1\text{yd} \doteq 0.9\text{m}$

$79\text{yd} \doteq (79 \times 0.9)\text{m} \doteq 71.1\text{m}$

E) 3910 yd. to m

$1\text{yd} \doteq 0.9\text{m}$

$3910\text{yd} \doteq (3910 \times 0.9)\text{m} \doteq 3519\text{m}$

F) 280 mi. to km

$1\text{mi} \doteq 1.6\text{km}$

$280\text{mi} \doteq (280 \times 1.6)\text{km}$

$280\text{mi} \doteq 448\text{km}$

G) 87 in. to mm

$1\text{in.} \doteq 25\text{m}$

$87\text{in.} \doteq (87 \times 25)\text{mm}$

$87\text{in.} \doteq 2175\text{mm}$

2. Make these conversions from SI units to Imperial units.

A) 128 cm to in

$1\text{cm} \doteq 0.4\text{in}$

$128\text{cm} \doteq (128 \times 0.4)\text{in} \doteq 51.2\text{in}$

B) 15 m to ft

$1\text{m} \doteq 3.25\text{ft}$

$15\text{m} \doteq (15 \times 3.25)\text{ft} \doteq 48.75\text{ft}$

C) 95 km to mi.

$1\text{km} \doteq 0.6\text{mi.}$

$95\text{km} \doteq (95 \times 0.6)\text{mi.} \doteq 57\text{mi.}$

D) 285 km to mi.

$1\text{km} \doteq 0.6\text{mi.}$

$285\text{km} \doteq (285 \times 0.6)\text{mi} \doteq 171\text{mi.}$

3. A bowling lane is approximately 21m long. What is the measurement to the nearest foot?

$1\text{m} = 3.25\text{ft}$

$21\text{m} = (21 \times 3.25)\text{ft}$

$21\text{m} = 68.25\text{ft.}$

4. Nora knows that she is 5ft. 7in. tall.
   a. What height in centimeters will she list on her driver's license application?

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

$5\text{ft.} = (5 \times 12)\text{in} = 60\text{in.}$

$\text{Height} = 60\text{in} + 7\text{in} = 67\text{in.}$

$1\text{in.} \doteq 2.5\text{cm}$

$67\text{in.} \doteq (67 \times 2.5)\text{in} \doteq 167.5\text{cm}$

   b. Check your solution.

5ft. 7in.

$1\text{ft} \doteq 30\text{cm}$

$5\text{ft} = (5 \times 30)\text{cm}$

$5\text{ft} = 150\text{cm}$

7in

2x7 14cm

3x7 21cm

so 5ft 7in is b/w 164cm & 171cm

∴ answer is reasonable.

5. A truck driver knows that her trailer is 3.8 m high. The support beams of a bridge are 11 ft. 9 in. high. Will the vehicle fit under the bridge?

method 1

Change m → ft & in

1 m ≐ 3.25 ft

3.8 m ≐ (3.8 × 3.25) ft

= 12.35 ft

Since 12.35 ft > 11 ft. 9 in, the truck will not fit under the bridge.

method 2

Change ft. & in. to m.

11 ft. 9 in ⇒ to in.

11 ft = (11 × 12) in = 132 in

132 in + 9 in = 141 in

141 in → cm

141 in ≐ (141 × 2.5) cm

≐ 352.5 cm

or ≐ 3.525 m

Since 3.525 m < 3.8 m the truck will not fit under the bride.

6. Two cars left Goose Bay. One drove 80 miles the other 135 km. Who drove further?

2 methods 1 km → mi or mi → km

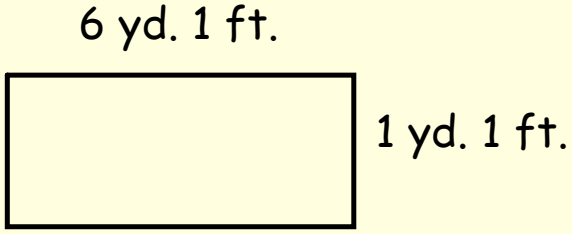
80 mi → km

1 mi ≐ 1.6 km

80 mi ≐ (80 × 1.6) km ≐ 128 km

The guy who drove 135 km drove further because 135 km > 128 km.

7. Calculate the cost to fence the yard shown below if the fence material costs $4.85 per metre.



$6\text{yd}\cdot 1\text{ft} = (6\times 3)\text{yd} + 1\text{ft} = 19\text{ft}$

$1\text{yd}\cdot 1\text{ft} = (1\times 3)\text{yd} + 1\text{ft} = 4\text{ft}$

$P = 2l + 2w$

$P = 2(19) + 2(4)$

$= 38 + 8$

$= 46\text{ ft}$

$1\text{ft} = 0.3\text{m}$

$46\text{ft} = (46\times 0.3)\text{m} = 13.8\text{m}$

Need to buy 14m.

$\therefore \text{Cost} = 14\times \$4.85 = \$67.90$