

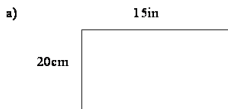
Lesson 7: Conversion Problems

Scheduled Review
Convert each of the following

14cm to in 15 yd to cm 6ft and 2in to m

Imperial to Imperial	SI to Imperial	Imperial to SI
1 ft = 12 in	1 mm \cong 0.0394 in	1 in = 2.54 cm
1 yd = 3 ft	1 cm \cong 0.3937 in	1 ft = 30.48 cm
1 yd = 36 in	1 m \cong 39.3701 in	1 ft = 0.3048 m
1 mi = 1760 yd	1 m \cong 3.2808 ft	1 yd = 91.44 cm
1 mi = 5280 ft	1 km \cong 0.6214 mi	1 yd = 0.9144m
		1 mi \cong 1.6093 km
		1 in = 25.4mm

Eg For the following shape answer each part

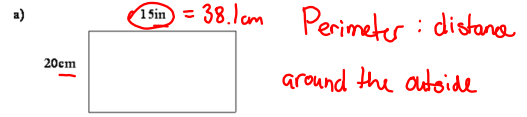


i) What is the perimeter in feet

ii) What is the area in cm²?

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Eg For the following shape answer each part



i) What is the perimeter in feet

$$P = 38.1cm + 38.1cm + 20cm + 20cm = 116.2cm$$

inches \rightarrow cm

$$\frac{15in}{xcm} = \frac{1in}{2.54cm}$$

$$x = 38.1cm$$

Change 116.2cm to Feet.

$$\frac{116.2cm}{xft} = \frac{30.48cm}{1ft}$$

$$\frac{30.48x}{30.48} = \frac{116.2}{30.48}$$

$$x = 3.8ft$$

Mar 27-10:15 AM

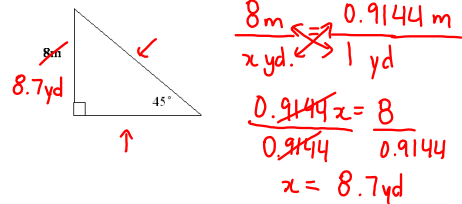
ii) area in cm²? Area = L x W

$$= (20cm)(38.1cm)$$

$$= 762 cm^2$$

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b) What is the perimeter of the triangle in yards?



Word Problems

1. Bill wants to re-carpet his rectangular living room which has dimensions of 52.5cm by 8.3 yd. If the carpet cost \$2.25 per square foot, how much will it cost?

2. Anne is framing a picture. The perimeter of the framed picture is 136 in.
a) what will the perimeter of the framed picture in feet and inches?

b) the framing material is sold by the foot. It cost \$1.89/ft. What will be the cost of the material before taxes?

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SOH CAH TOA

$$\tan 45^\circ = \frac{\text{opp}}{\text{adj}}$$

$$\tan 45^\circ = \frac{8.7\text{yd}}{\text{adj}}$$

$$\text{adj} = \frac{8.7\text{yd}}{\tan 45^\circ}$$

$$= 8.7\text{yd}$$

$$a^2 + b^2 = c^2$$

$$8.7^2 + 8.7^2 = c^2$$

$$75.7 + 75.7 = c^2$$

$$151.4 = c^2$$

$$c = 12.3\text{yd}$$

$$P = 8.7\text{yd} + 8.7\text{yd} + 12.3\text{yd}$$

$$= 29.7\text{yd}$$

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1. Bill wants to re-carpet his rectangular living room which has dimensions of 525cm by 8.3 yd. If the carpet cost \$2.25 per square foot, how much will it cost?

Apr 7-7:54 AM

① Price in sq. ft. ∴ we must convert to ft.

525cm → ft

$$\frac{525\text{cm}}{x\text{ft}} = \frac{30.48\text{cm}}{1\text{ft}}$$

$$\frac{30.48x}{30.48} = \frac{525}{30.48}$$

$$x = 17.2\text{ft}$$

8.3yd → ft

$$\frac{8.3\text{yd}}{x\text{ft}} = \frac{1\text{yd}}{3\text{ft}}$$

$$x = 24.9\text{ft}$$

Area = L × W

$$= (17.2\text{ft})(24.9\text{ft})$$

$$= 428.3\text{ft}^2$$

Price: Area × Cost/ft²

$$= 428.3\text{ft}^2 \times \$2.25$$

$$= \$963.68$$


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2. Anne is framing a picture. The perimeter of the framed picture is 136 in.

a) what will the perimeter of the framed picture in feet and inches?

b) the framing material is sold by the foot. It cost \$1.89/ft. What will be the cost of the material before taxes?

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② a)  Perimeter = 136 in.

Final answer: 11 ft + 4 inches

$$136 \text{ inches} \div 12 \text{ inches/ft} = 11.\bar{3}$$

$$11 \text{ ft} \times 12 \text{ inches} = 132$$

$$\text{Extra inches} = 136 - 132 = 4 \text{ inches}$$

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2b) 11 ft + 4 inches

We need to buy 12 ft.

$$\$1.89 \times 12 \text{ ft} = \$22.68$$

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③ Scale Questions.

Map

Reality

$$\frac{1 \text{ cm}}{50 \text{ km}} \leftrightarrow \frac{11.2 \text{ cm}}{x \text{ km}}$$

$x = 560 \text{ km}$

Question wants miles \therefore we convert.

$$\frac{560 \text{ km}}{x \text{ mi.}} \leftrightarrow \frac{1 \text{ km}}{0.6214 \text{ mi.}}$$

$$x = 347.984 \text{ mi}$$

= 348 mi.

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④ 1:4 750 000 (inches)

$$\frac{1}{4\,750\,000} \leftrightarrow \frac{3.6875 \text{ map}}{x \text{ in. real life measurement}}$$

$x = 17\,515\,625 \text{ inches}$ $3 \frac{11}{16} = 3.6875$

Convert to ft then miles.

$$\frac{17\,515\,625 \text{ in.}}{x \text{ ft}} \leftrightarrow \frac{12 \text{ in}}{1 \text{ ft}}$$

$$\frac{12x}{12} = \frac{17\,515\,625}{12}$$

$$x = 1\,459\,639.417 \text{ ft}$$

Convert to miles.

$$\frac{1\,459\,639.417 \text{ ft}}{x \text{ mi.}} \leftrightarrow \frac{5280 \text{ ft}}{1 \text{ mi}}$$

$$\frac{5280x}{5280} = \frac{1\,459\,639.417}{5280}$$

x = 276.446 mi

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⑤ Change hours \rightarrow seconds

$$\frac{1.5 \text{ hours}}{x \text{ sec.}} \rightarrow \frac{1 \text{ h}}{3600 \text{ s}} \quad 60 \text{ s} \times 60 \text{ min} = 3600 \text{ s/h}$$

$$x = 5400 \text{ seconds}$$

$$\frac{2.3 \text{ ft}}{1 \text{ s}} \rightarrow \frac{x \text{ ft}}{5400 \text{ s}}$$

$$x = 12420 \text{ ft in } 1.5 \text{ hours.}$$

ft \rightarrow miles

$$\frac{12420 \text{ ft}}{x \text{ mi.}} \rightarrow \frac{5280 \text{ ft}}{1 \text{ mi.}}$$

$$\frac{5280x = 12420}{5280} \quad \frac{5280}{5280}$$

$$x = 2.35 \text{ miles}$$

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3. A map has a scale of 1 cm: 50 km (1 cm on the map is actually 50 km). If 2 cities are 11.2 cm apart on the map, how many actual miles are they apart?

4. A map of Alaska has a scale of 1:4 750 000. The distance on the map between Paxson and the Canadian border is $3\frac{11}{16}$ in. What is this distance to the nearest mile?

5. The fastest moving insect is the large tropical cockroach. It scurries at speeds of up to 2.3 feet per second. How many miles a roach can travel in 1.5 hours.

Homework Pg 12 #14, 15, 17, 19, 21a
Pg 22 #11-13, 15, 16, 18a

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