

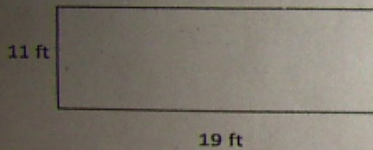
Conversions, Surface Area, & Volume

1. Calculate the following conversions:

- a) 45 mi. _____ km
- b) 75 in. _____ cm
- c) 37g _____ kg
- d) 26 oz _____ lb
- e) 3000 yd _____ mi

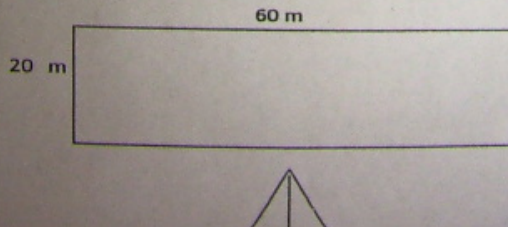
2. Calculate the following perimeters:

a) Calculate in inches



3. Calculate the following areas in the indicated measurements:

a) inches



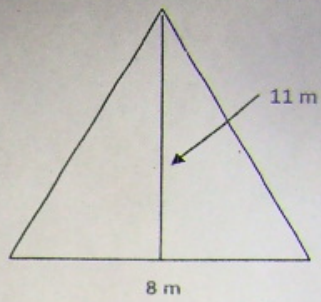
b) feet

10. Perform the following conversions:

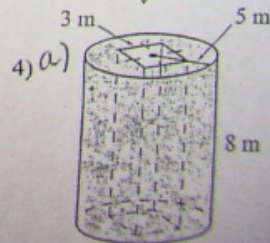
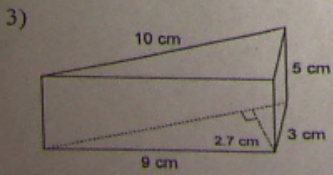
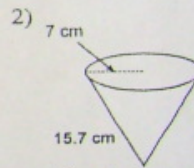
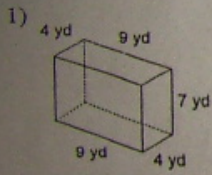
- a) 30° Celsius = _____ degrees Fahrenheit
- b) 77° Fahrenheit = _____ degrees Celsius
- c) 5 US gallons = _____ L
- d) A can of tomatoes holds 5.5 fl oz. Your recipe calls for 225 ml of tomatoes. Will you have enough?
- e) You decide to visit a friend in California. She tells you that she lives 1300 miles away. Your odometer tells you that you have already travelled 800 km. How much further do you have to go in Km?

Jennifer is installing a circular pond in her backyard. The pond is 2 feet in diameter. Jennifer needs to install a synthetic rubber liner for the base of the pond.
a) How much synthetic rubber liner does Jennifer need?
b) If the liner costs \$8.50/ft², how much will the liner cost?

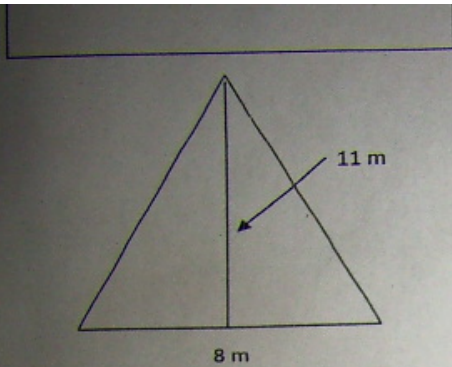
b) feet



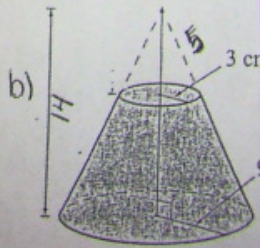
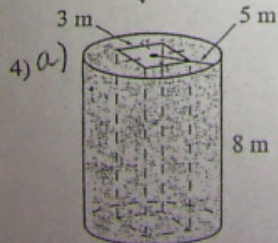
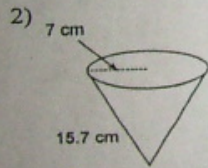
Find the surface area of each figure. Round to the nearest tenth.



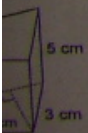
b)

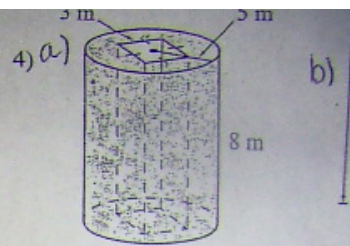
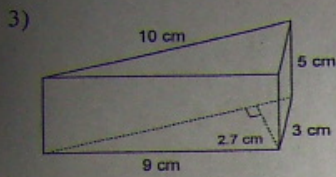


For each figure. Round to the nearest tenth.

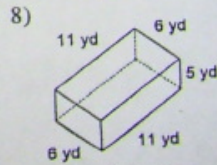
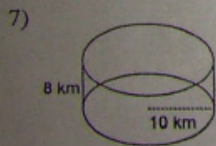
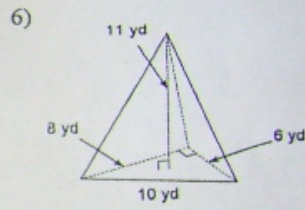
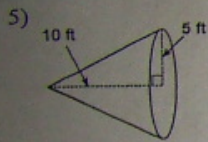


Jennifer is planning a circular custom garden pond in her back yard. The pond is 2 feet deep and has a diameter of 5 feet. Jennifer wants to install a synthetic rubber liner along the walls and bottom of the pond. How much synthetic rubber should Jennifer order for her pond? If the liner costs \$8.50/ft², how much will the liner cost Jennifer?





Find the volume of each figure. Round to the nearest tenth.



4) a) 3 m 5 m 8 m

b) 3 cm H

Each figure. Round to the nearest tenth.

6) 11 yd 8 yd 10 yd 6 yd

8) 11 yd 6 yd 5 yd 6 yd 11 yd

9. Determine the volume of the composite figure.

5.25
8.1
3 cm

e) You decide to visit a friend in California. She tells you that she lives 1300 miles away. Your odometer tells you that you have already travelled 800 km. How much further do you have to go in Km?

11. Jennifer is installing a circular custom garden pond in her backyard. The pond is 2 feet deep and has a diameter of 5 feet. Jennifer needs to install a synthetic rubber liner along the walls and the base of the pond.
- How much synthetic rubber should Jennifer order for her pond?
 - If the liner costs $\$8.50/\text{ft}^2$, how much will the liner cost Jennifer?

Find the area of the indicated measurements:

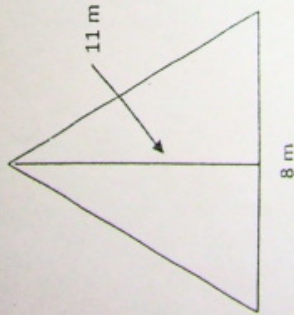
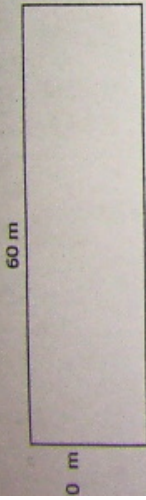
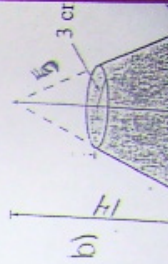
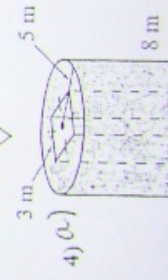
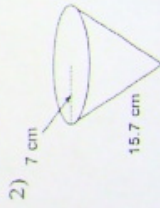


Figure. Round to the nearest tenth.



1. a) $45 \text{ mi} = \underline{72.4} \text{ Km}$

$45 \times \frac{1.6093}{1}$
 $= 72.4185$

b) $75 \text{ in} = \underline{190.5} \text{ cm}$

$75 \times \frac{2.54}{1}$
 $= 190.5$

c) $37 \text{ g} = \underline{0.037} \text{ Kg}$

$37 \times \frac{1}{1000}$
 $= 0.037$

d) $26 \text{ oz} = \underline{1.625} \text{ lb}$

$26 \times \frac{1}{16}$
 1.625

"want"
have

e) $3000 \text{ yd} = \underline{1.7} \text{ mi}$

$3000 \times \frac{1}{1760}$
 1.7045

$$\begin{aligned} 2. \quad P &= S + S + S + S \\ &= 11 + 11 + 19 + 19 \\ &= 60 \text{ ft} \end{aligned}$$

$$\begin{aligned} 60 \text{ ft} &= \frac{720}{60 \times \frac{12}{1}} \text{ in.} \end{aligned}$$

3. $A = L \times W$
 $= 20 \times 60$
 $= 1200 \text{ m}^2$

$1200 \text{ m}^2 = \text{_____ in}^2$
 $1200 \times \left(\frac{\text{_____}}{\text{_____}} \right)^2$

Step 1 m \rightarrow cm
 $1200 \text{ m}^2 = \text{_____ cm}^2$
 $1200 \times \left(\frac{100}{1} \right)^2$
 $1200 \times \frac{10000}{1}$
 12000000 cm^2

STEP 2 cm \rightarrow in
 $12000000 \text{ cm}^2 = \text{_____ in}^2$
 $12000000 \times \left(\frac{1}{2.54} \right)^2$
 $12000000 \times \frac{1}{6.4516}$
 1860000.72 in^2

Convert first.
 $20 \text{ m} = \text{_____ cm}$
 $20 \times \frac{100}{1}$
 2000
 $2000 \text{ cm} = \text{_____ in}$
 $2000 \times \frac{1}{2.54}$
 787.4 in

$60 \text{ m} = \text{_____ cm}$
 $60 \times \frac{100}{1}$
 6000
 $6000 \text{ cm} = \text{_____ in}$
 $6000 \times \frac{1}{2.54}$
 2362.205 in

2362.205 in
 787.4 in
 $A = 2362.205 \times 787.4$
 $= 1860000.217 \text{ in}^2$

$$\begin{aligned} 4. \quad A &= \frac{b \times h}{2} \\ &= \frac{8 \times 11}{2} \\ &= \frac{88}{2} \\ &= 44 \text{ m}^2 \end{aligned}$$

$$44 \text{ m}^2 = \frac{\quad}{\quad} \text{ ft}^2$$
$$44 \times \left(\frac{3.2808}{1} \right)^2$$

$$44 \times \frac{10.7636}{1}$$
$$\underline{473.6 \text{ ft}^2}$$

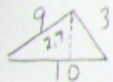
Surface Area:

1. Top	Front	Side
Bottom	Back	Side
$A=L \times w$	$A=L \times w$	$A=L \times w$
$= 9 \times 4$	$= 9 \times 7$	$= 4 \times 7$
$= 36$	$= 63$	$= 28$
$\times 2$	$\times 2$	$\times 2$
<hr/>	<hr/>	<hr/>
72	126	56

$$\text{TSA} = 254 \text{ yd}^2$$

$$\begin{aligned} 2. \text{ SA} &= \pi r^2 + \pi r s \\ &= (3.14)(7)^2 + (3.14)(7)(15.7) \\ &= (3.14)(49) + 345.086 \\ &= 153.86 + 345.086 \\ &= 498.946 \text{ cm}^2 \end{aligned}$$

3.



$$A = \frac{b \times h}{2}$$

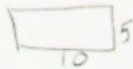
$$= \frac{10 \times 2,7}{2}$$

$$= \frac{27}{2}$$

$$= 13,5$$



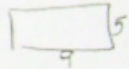
$$= 13,5$$



$$A = L \times W$$

$$= 10 \times 5$$

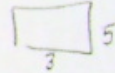
$$= 50$$



$$A = L \times W$$

$$= 9 \times 5$$

$$= 45$$



$$A = L \times W$$

$$= 3 \times 5$$

$$= 15$$

$$\text{TSA} = 137$$

4.



$$\begin{aligned}
 SA &= 2\pi r^2 + 2\pi r h \\
 &= 2(3.14)(5)^2 + 2(3.14)(5)(8) \\
 &= 2(3.14)(25) + 251.2 \\
 &= 157 + 251.2
 \end{aligned}$$

Square
 $A = L \times w$
 $= 3 \times 3$
 $= 9$

$$\begin{aligned}
 &= 408.2 \\
 &\quad - 18 \quad (2 \text{ squares}) \\
 \hline
 &390.2
 \end{aligned}$$



~~Top~~
~~Bottom~~

Front	Side
Back	Side
$A = L \times w$	$A = L \times w$
$= 3 \times 8$	$= 3 \times 8$
$= 24$	$= 24$
$\frac{\times 2}{48}$	$\frac{\times 2}{48}$
	96

$$\begin{aligned}
 TSA &= 390.2 \\
 &\quad + 96 \\
 \hline
 &486.2 \text{ m}^2
 \end{aligned}$$

4b. Large Cone Small Cone

$$\begin{aligned} & \pi r^2 + \pi r s \\ & (3.14)(9)^2 + (3.14)(9)(16.6) \\ & (3.14)(81) + 469.116 \\ & 254.34 + 469.116 \\ & 723.456 \end{aligned}$$

Slant

$$\begin{aligned} a^2 + b^2 &= c^2 \\ 9^2 + 14^2 &= c^2 \\ 81 + 196 &= c^2 \\ 277 &= c^2 \\ 16.6 &= c \end{aligned}$$

Small Cone

$$\begin{aligned} & \pi r^2 + \pi r s \\ & (3.14)(3)^2 + (3.14)(3)(5) \\ & (3.14)(9) + 47.1 \\ & 28.26 + 47.1 \\ & 75.36 \end{aligned}$$

Top circle


$$\begin{aligned} TSA &= 723.456 - 75.36 + 28.26 \\ &= 676.356 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} 5. \quad V &= \frac{A_{\text{base}} \times H}{3} \\ &= \frac{\pi r^2 \times H}{3} \\ &= \frac{(3.14)(5)^2 \times 10}{3} \\ &= \frac{(3.14)(25) \times 10}{3} \\ &= \frac{785}{3} \\ &= 261.7 \text{ ft}^3 \end{aligned}$$


$$\begin{aligned} 6. \quad V &= \frac{A_{\text{base}} \times H}{3} \\ &= \frac{\frac{b \times h}{2} \times H}{3} \\ &= \frac{\frac{6 \times 8}{2} \times 11}{3} \\ &= \frac{\frac{48}{2} \times 11}{3} \\ &= \frac{24 \times 11}{3} \\ &= \frac{264}{3} = 88 \text{ yd}^3 \end{aligned}$$

$$\begin{aligned} 7. \quad V &= A_{\text{base}} \times H \\ &= \pi r^2 \times H \\ &= (3.14)(10)^2 \times 8 \\ &= (3.14)(100) \times 8 \\ &= 2512 \text{ Km}^3 \end{aligned}$$

$$\begin{aligned} 8. \quad V &= A_{\text{base}} \times H \\ &= L \times w \times H \\ &= 6 \times 11 \times 5 \\ &= 330 \text{ yd}^3 \end{aligned}$$

9. cone 

$$V = \frac{A_{\text{base}} \times H}{3}$$
$$= \frac{\pi r^2 \times H}{3}$$
$$= \frac{(3.14)(3)^2 \times 5.25}{3}$$
$$= \frac{(3.14)(9) \times 5.25}{3}$$
$$= \frac{148.365}{3}$$
$$= 49.455 \text{ cm}^3$$



$$V = A_{\text{base}} \times H$$
$$= \pi r^2 \times H$$
$$= (3.14)(3)^2 \times 8.1$$
$$= (3.14)(9) \times 8.1$$
$$= 228.906 \text{ cm}^3$$

$$\text{TSA} = 49.455 + 228.906$$
$$= 278.361 \text{ cm}^3$$

$$10. a) 30^{\circ}\text{C} = \underline{\hspace{2cm}} \text{F} \quad \left(\quad b) 77^{\circ}\text{F} = \underline{\hspace{2cm}} \text{C} \right.$$

$$\begin{aligned} F &= \frac{9}{5} C + 32 \\ &= \frac{9}{5} (30) + 32 \\ &= 54 + 32 \\ &= 86^{\circ}\text{F} \end{aligned}$$

$$\begin{aligned} C &= \frac{5}{9} (F - 32) \\ &= \frac{5}{9} (77 - 32) \\ &= \frac{5}{9} (45) \\ &= 25^{\circ}\text{C} \end{aligned}$$

$$c) 5 \text{ US gallons} = \underline{18.925 \text{ L}}$$

$$\begin{aligned} 5 \times \frac{3.785}{1} \\ = 18.925 \end{aligned}$$

c) 5 US gallons = 18.925 L

$$5 \times \frac{3.785}{1} \\ = 18.925$$

d) 5.5 fl oz = _____ mL

$$5.5 \times \frac{29.5735}{1} \\ = 162.6$$

I don't have
enough.

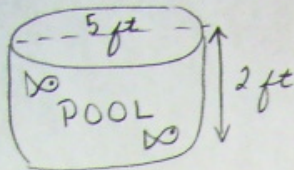
e) 1300 mi = _____ Km

$$1300 \times \frac{1.6093}{1} \\ 2092.09$$

$$\begin{array}{r} 2092.09 \text{ Km} \\ - 800 \text{ Km} \\ \hline 1292.09 \text{ Km} \end{array}$$

You still have to
go 1292.09 Km.
"Road Trip!"

11.



a) Surface Area ^{no top ☺}

$$\begin{aligned}
 SA &= 2\pi r^2 + 2\pi r h \\
 &= 1\pi r^2 + 2\pi r h \\
 &= 1(3.14)(2.5)^2 + 2(3.14)(2.5)(2) \\
 &= 1(3.14)(6.25) + 31.4 \\
 &= 19.625 + 31.4 \\
 &= 51.025 \text{ ft}^2
 \end{aligned}$$

← she will have to purchase 52 ft² to cover the pool

b) \$ 8.50 / ft²

$$52 \times \$8.50$$

$$\underline{\underline{\$442}}$$

