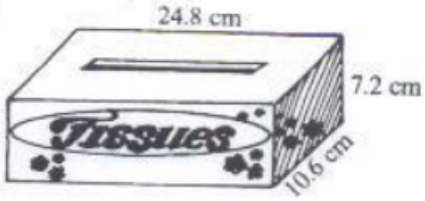
# Homework Questions...

10 10% extra material for the overlap of the edges is needed to construct each tissue box. Calculate the amount of paper needed to construct each one.

(a)


(b)




(2) 12.5 (2) 15.2 (2) 15.2

20.2 12.5 20.2

$SA_{total} = 2(12.5 \times 20.2) + 2(12.5 \times 15.2) + 2(20.2 \times 15.2)$

$1499.08\,cm^2$

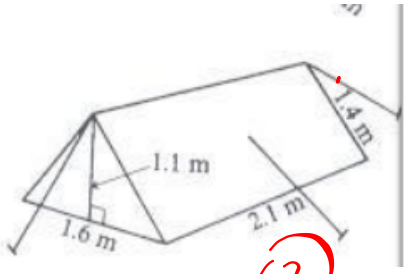
+ 10% of 1499.08

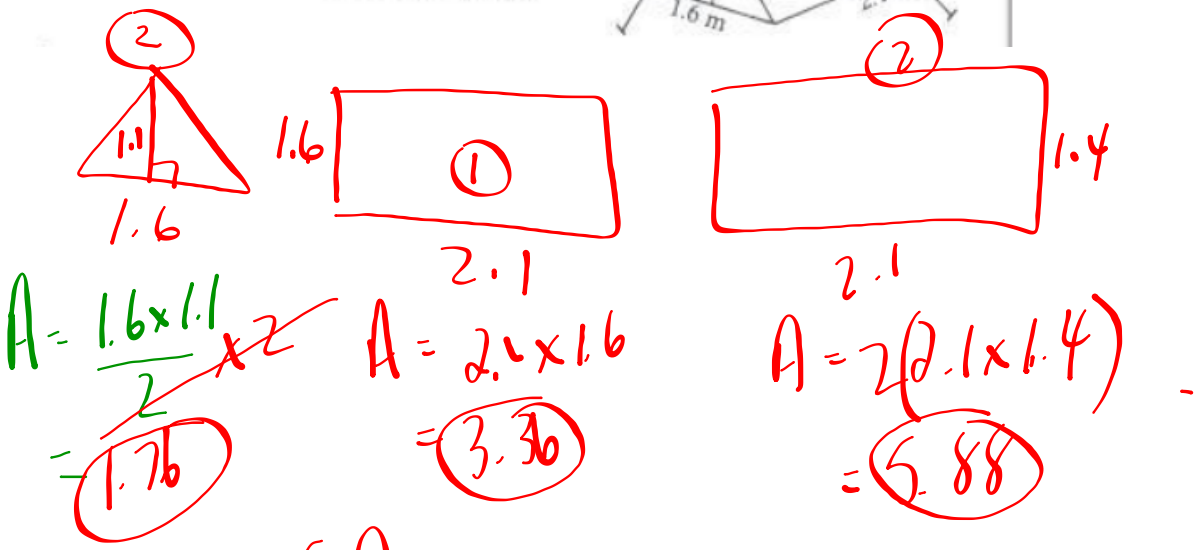
$0.10 \times 1499.08$

149.908 Extra

+ Total $1649\,cm^2$

The tent shown in the diagram has a sewn-in ground sheet. Find the amount of material used to make the tent if 0.3 $m^2$ of extra material is added for the seams.




$A = \frac{1.6 \times 1.1}{2} \times 2$

$= 1.76$

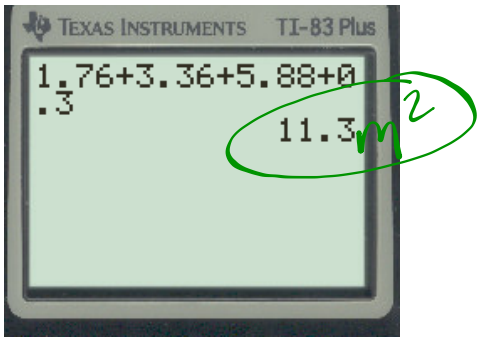
$A = 2.1 \times 1.6$

$= 3.36$

$A = 2(2.1 \times 1.4)$

$= 5.88$

$SA_{total} =$

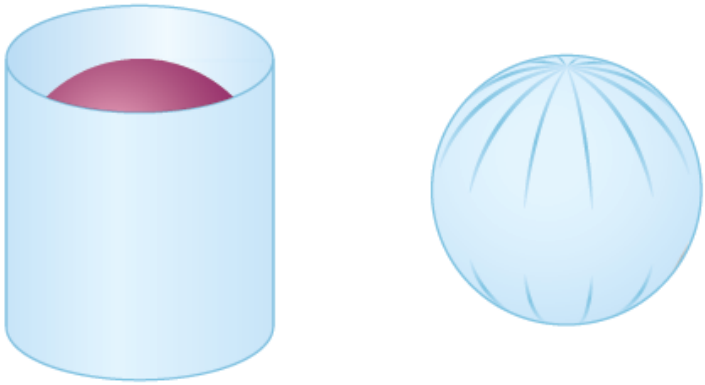


Surface Area of Spheres and Cones...

$SA_{sphere} = 4\pi r^2$

$SA_{cone} = \pi r^2 + \pi r s$

The surface area of a sphere is related to the curved surface area of a cylinder that encloses it. The cylinder has the same diameter as the sphere, and a height equal to its diameter. ?



1.6 Surface Area and Volume of a Sphere

The curved surface area, $SA_C$, of a cylinder with base radius $r$ and height $h$ is:

$SA_C = 2\pi rh$

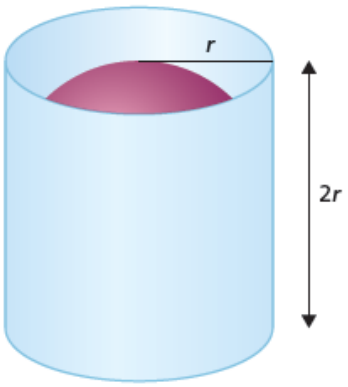
When a cylinder has base radius $r$ and height $2r$:

?

$SA_C = 2\pi r(2r)$

$SA_C = 4\pi r^2$

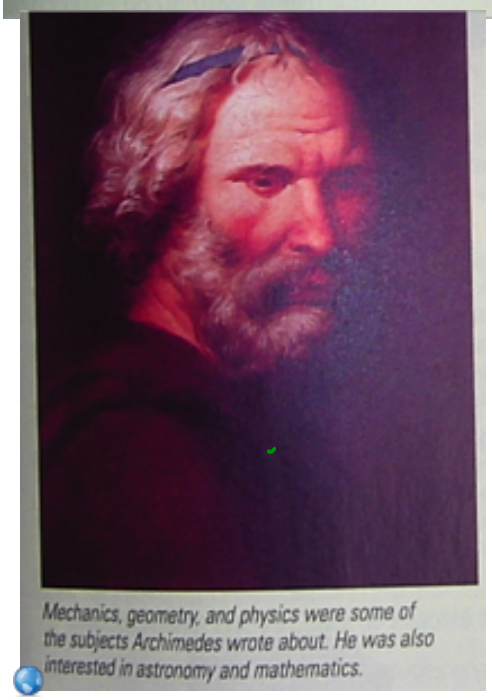
?



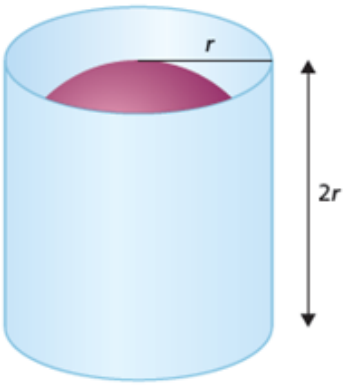

1.6 Surface Area and Volume of a Sphere

THE ROOTS OF MATH

ARCHIMEDES' CONTRIBUTIONS TO SURFACE AREA CALCULATIONS



Mechanics, geometry, and physics were some of the subjects Archimedes wrote about. He was also interested in astronomy and mathematics.




If $h = 2r$,

then...

1) Sphere:

- look at the label from the cylinder

$2\pi rh$

$= \pi dh$

$= \pi(2r)(2r)$

$= 4\pi r^2$

2) Cylinder:

$= \frac{2}{3}(\pi dh + 2\pi r^2)$

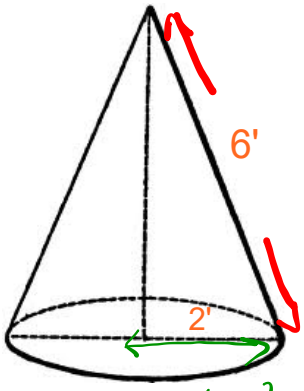
$= \frac{2}{3}(4\pi r^2 + 2\pi r^2)$

$= \frac{2}{3}(6\pi r^2)$

$= 4\pi r^2$

Find the surface area of the following shapes.

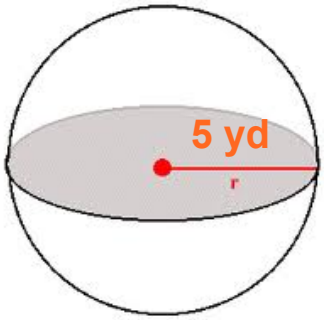
1.




$SA = 4(2)^2 + \pi(2)(6)$

$= 50.3\ ft^2$

2.



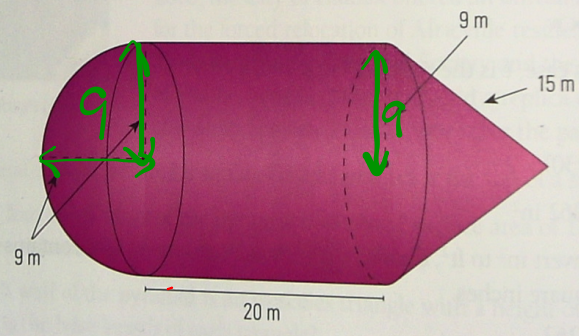

$SA = 4\pi(5)^2$

$= 314.2\ yd^2$

## Activity 6.3 on page 238: Composite shapes... more than 1 figure!

ACTIVITY 6.3
**DESIGNING OBJECTS USING PYRAMIDS AND CYLINDERS**

Rhashan has been contracted by a company to design a large balloon for the Holiday Parade of Lights in Halifax, NS. He makes a sketch of his design, as shown below.




Surface area of hemisphere $= \frac{1}{2}(4\pi r^2)$

Surface area $= \frac{1}{2}(4)(\pi)(9^2)$

Surface area $\approx 508.94\ m^2$

Surface area of outside of cylinder $= 2\pi rh$

Surface area $= 2\pi(9)(20)$

Surface area $\approx 1130.97\ m^2$

Surface area of lateral face of cone $= \pi rs$

Surface area $= \pi(9)(15)$

Surface area $\approx 424.12\ m^2$

Add to determine the total surface area.

$508.94 + 1130.97 + 424.12 = 2064.03\ m^2$

The total surface area of the balloon is 2064.03 m

**Homework...** 6.2 Worksheet - Surface Area of Cones_Spheres.docx

Done in class

p. 232: #1 & 6

**6.1 - Build Your Skills Solutions.pdf**

p. 242: #3 & 5

**6.2 - Build Your Skills Solutions.pdf**

## Attachments

6.1 - Build Your Skills Solutions.pdf

6.2 - Build Your Skills Solutions.pdf

6.2 Worksheet - Surface Area of Cones_Spheres.docx