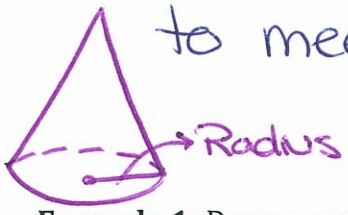
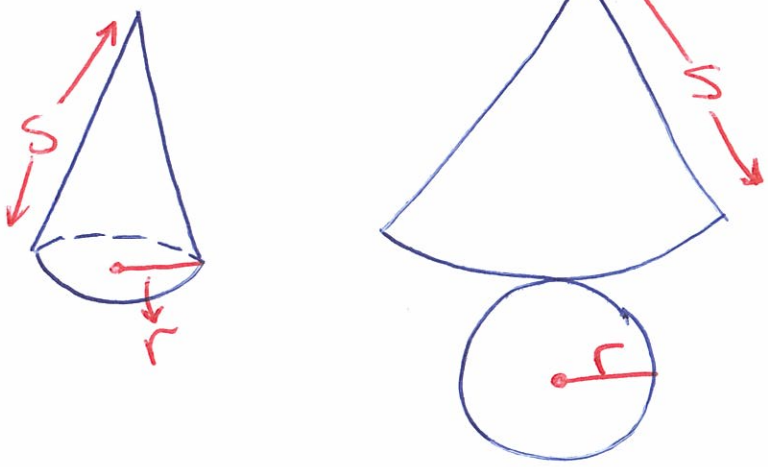
CONE: A 3-Dimensional shape with a circle on the base & one side wrapping to meet at a point opposite the circle.

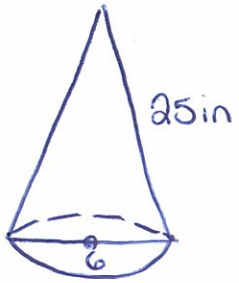


Example 1: Draw a cone with its corresponding Net.



SURFACE AREA CONE: $SA = \pi r^2 + \pi r s$ * This is "Slant Height" not Vertical Height.

Example 2: Find the surface area of a cone that has a slant height of 25" and a diameter of 6".



Radius $= 6 \div 2 = 3$in.

$SA = \pi r^2 + \pi r s$

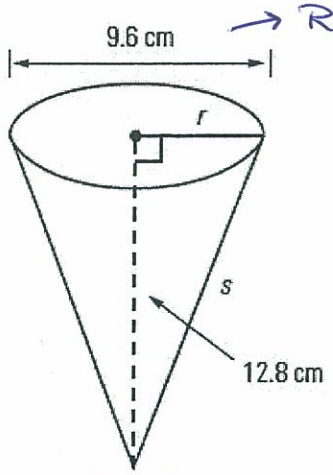
$= \pi \times 3^2 + \pi \times 3 \times 25$

$= 28.274 + 235.619$

$= 263.893$

$= 263.9 \text{in}^2$

Example 3: Find the surface area of the cone.



→ Radius = 9.6 ÷ 2
= 4.8cm

$SA = \pi r^2 + \pi rs$
$= \pi \times 4.8^2 + \pi \times 4.8 \times 13.67$
$= 72.382 + 206.139$
$= 278.521$

$SA = 278.5 cm^2$

Use Pythagoras to find slant height:

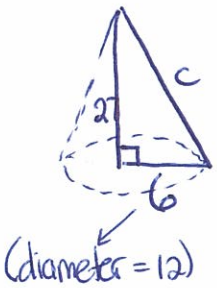
$a^2 + b^2 = c^2$

$4.8^2 + 12.8^2 = c^2$
$23.04 + 163.84 = c^2$
$\sqrt{186.88} = c = 13.670$

Example 4: Find the lateral surface area of a cone whose height is 27 cm and whose diameter is 12 cm

Lateral Area = Area of Sides (Not the top or the bottom)

Need slant height



$6^2 + 27^2 = c^2$
$36 + 729 = c^2$
$765 = c^2$
$\sqrt{765} = c$
$27.659 = c$

Lateral Area = πrs
$= \pi \times 6 \times 27.659$
$= 521.36 cm^2$

Example 5: Find the **height** of a cone with surface area of 75.4 m^2 and a radius of 3 m

$SA = \pi r^2 + \pi rs$
$75.4 = \pi \times 3^2 + \pi \times 3 \times s$
$75.4 = 28.274 + 9.425s$
-28.274
$47.126 = 9.425s$
$\div 9.425$
$s = 47.126 \div 9.425$
$s = 5.00$

$a^2 + b^2 = c^2$
$h^2 + 3^2 = 5^2$
$h^2 + 9 = 25$
-9
$h^2 = 16$
$h = \sqrt{16}$

Now we need height

$h = 4m$

Homework: Pg 161 #13-14 Pg 162 #15-17