Wednesday, May 27, 2020

Sec 11-3: Surface Area of Cones

Surface Area Formulas:

Prism: $SA = (p)(h) + 2B$

Cylinder: $SA = 2\pi rh + 2\pi r^2$

Pyramid: $SA = \frac{1}{2}(p)(\ell) + B$

p = perimeter of the Base

h = Height of the figure (altitude)

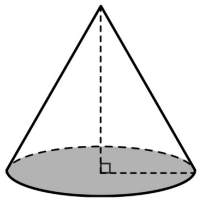
r = radius of the Base

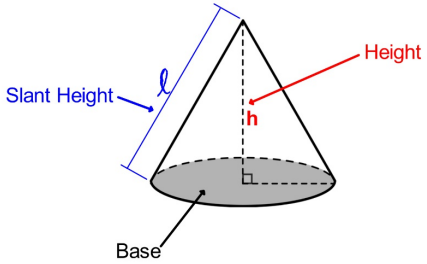
ℓ = slant height

B = area of the Base

Cone:

Like a Pyramid it only has one Base but the Base is a Circle.



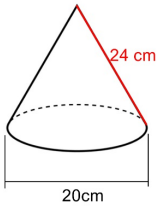


SA of a Cone:

$$SA = LA + B$$

$\pi r\ell$ $\quad$ πr^2

Find the SA of this cone. Leave your answer in terms of π



20 = diameter of the base

24 = slant height

First we'll need to turn the diameter into the radius: r = diameter/2 = 20/2

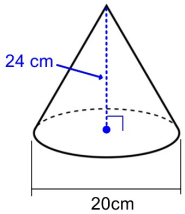
r = 10 cm

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

$= \pi (10)(24) + \pi(10)^2$

$= 240\pi + 100\pi = 340\pi \text{ cm}^2$

Find the SA of this cone to the nearest hundredth.



24 = Height of Cone (altitude)

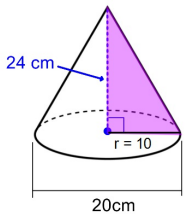
20 = diameter of the base.

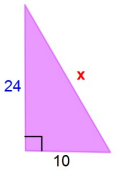
Use diameter to find radius:

r = 20/2 = 10

Now we need to find Slant Height.

Find Slant Height:

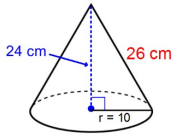




$\sqrt{24^2 + 10^2} = \sqrt{x^2}$

$x = 26$

Slant Height = 26 cm



$\ell = 26$ r = 10

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

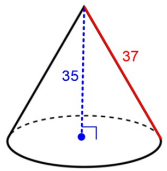
$= \pi(10)(26) + \pi(10)^2$

$= 260\pi + 100\pi$

$= 360\pi$

$SA = 1130.97\ cm^2$

Find the SA of this cone. Leave your answer in terms of π

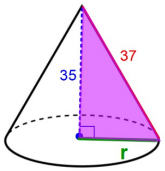


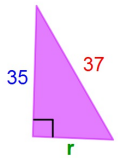
35 = the Height of the Cone (altitude)

37 = the Slant Height

We now need to find the Radius.

Finding the Radius:



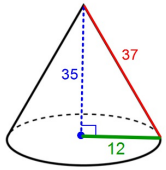


$35^2 + r^2 = 37^2$

$\sqrt{r^2} = \sqrt{37^2 - 35^2}$

$r = 12$

$\ell = 37$ r = 12



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

$= \pi(12)(37) + \pi(12)^2$

$= 444\pi + 144\pi$

$SA = 588\pi$

You can now do some more of
Practice #26.

We'll continue with this material tomorrow

Practice #26 will be due on
Sunday, May 31 by 10:00 pm