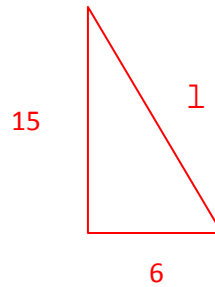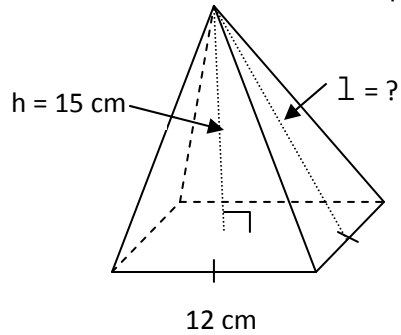**Geometry**
Unit: Surface Area and Volume
Section: Surface Area and Volume of Pyramids and Cones

Review Worksheet KEY

1) Find the surface area and volume of the pyramid below.

h = 15 cm

l = ?

15

l

12 cm

6

Find the slant height:

$6^2 + 15^2 = l^2$

$36 + 225 = l^2$

$261 = l^2$

$16.16 \approx l$

16.16

12

Find the area of each surface:

Square: (12)(12) = 144

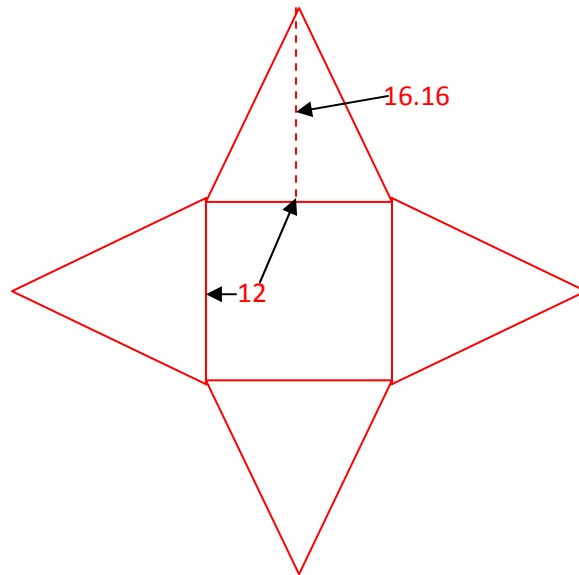Four triangles: $\frac{1}{2}(12)(16.16) = 96.96$

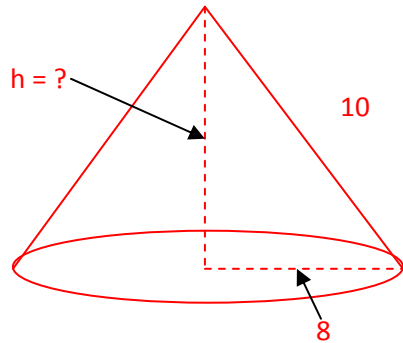**Add the areas together:**

144 + 4(96.96) = 531.84

Label:

The total surface area is 531.84 cm^2.

Volume:

$V = \frac{1}{3}$(area of base)(height) $= \frac{1}{3}(144)(15) = 720$ cm^3.

2) Find the surface area and volume of a cone with radius 8 and slant height 10.

$8^2 + h^2 = 10^2$
$64 + h^2 = 100$
$h^2 = 36$
$h = 6$

Surface area $= \pi r^2 + \pi r l = \pi(8)^2 + \pi(8)(10) = 144\pi$ units^2. This is approximately 452.39 units^2.

$V = \dfrac{1}{3}$(area of base)(height) $= \dfrac{1}{3}(64\pi)(6) = 128\pi$ units^3. This is approximately 402.12 units^3.

3) The surface area of a cone is 261π cm^2. The radius of the cone is 9 cm. What is the slant height?

What is the height of the cone? What is the volume of the cone?
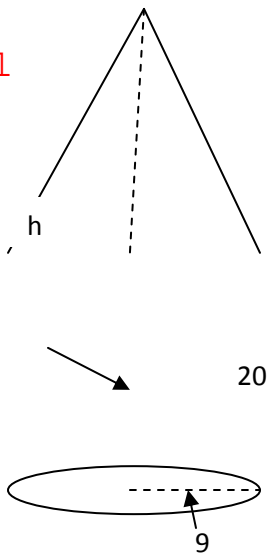
Surface area = $\pi r^2 + \pi r l$

$261\pi = \pi(9)^2 + \pi(9)l$

$261\pi = 81\pi + \pi(9)l$

$261\pi = 81\pi + \pi(9)l$

$180\pi = 9\pi l$ h

$20 = l$ 20

9

$9^2 + h^2 = 20^2$
$81 + h^2 = 400$
$h^2 = 319$
$h \approx 17.86$

$V = \dfrac{1}{3}$(area of base)(height) $= \dfrac{1}{3}(81\pi)(17.86) \approx 1514.94$ cm^3.