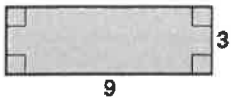
1. Find the area of the following shaded region:

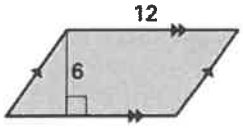
a.



$A = 3(9)$

Area = $27\ u^2$

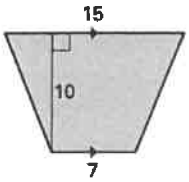
b.



$A = 6(12)$

Area = $72\ u^2$

c.

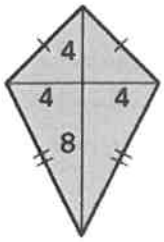


$A = \frac{1}{2}(10)(15+7)$

$= 110u^2$

Area = $110\ u^2$

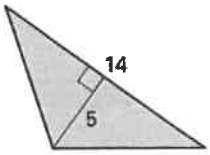
d.



$A = \frac{8(12)}{2}$

Area = $48\ u^2$

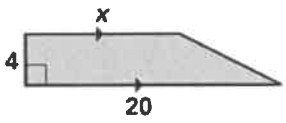
e.



$A = \frac{1}{2}(14)(5)$

Area = $35u^2$

2. The quadrilateral below has an area of 64 square units. Find the value of x.



$A = \frac{1}{2}(4)(x+20)$

$64 = \frac{1}{2}(4)(x+20)$

$64 = 2x + 40$

$24 = 2x$

$12 = x$

$\boxed{12u = x}$

3. Find the radius of the circle given that the area is $81\pi\ cm^2$.

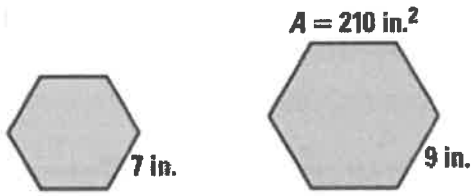
$81\pi = \pi r^2$

$81 = r^2$

$9 = r$

$\boxed{9\ cm = r}$

4. Corresponding lengths in the similar hexagon are given. Find the ratios (small to large) of the perimeters and areas. Find the area of the small hexagon. (6 points)



Perimeter Ratio = 7/9

Area Ratio = 49/81

$\frac{210}{A} = \left(\frac{9}{7}\right)^2$

$\frac{210}{A} = \frac{81}{49}$

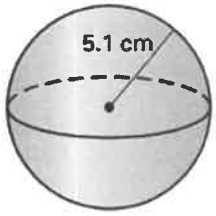
$10290 = 81A$

$127.03 = A$

Area of Small Hexagon = $127.03\ in^2$

5. Find the surface area of the sphere below:

a.



$S = 4\pi(5.1)^2$

$= 104.04\pi\ cm^2$

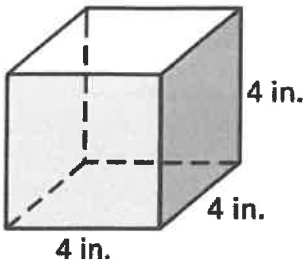
b.

$S = 4\pi(6^2)$

$= 144\pi\ cm^2$

6. Find the volume of the following:

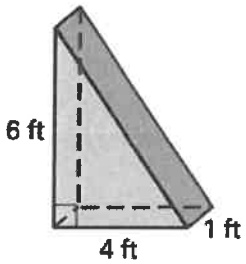
a.



$V = (4)(4)(4)$

$= 64 \text{ in}^3$

b.



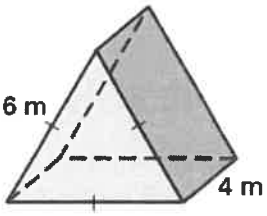
base → triangle

$B = \frac{1}{2}(4)(6)$

$V = \frac{1}{2}(4)(6)(1)$

$= 12 \text{ ft}^3$

c.

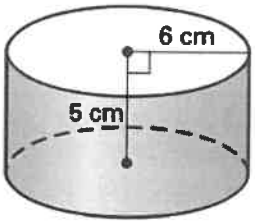


base → equilateral triangle

$V = \frac{\sqrt{3}}{4}(6)^2(4)$

$= 36\sqrt{3} \text{ m}^3$

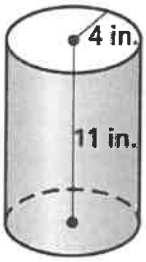
d.



$V = \pi(6)^2(5)$

$= 180\pi \text{ cm}^3$

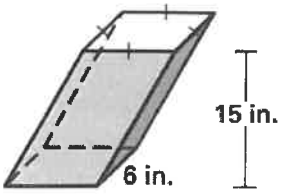
e.



$V = \pi(4)^2(11)$

$= 176\pi \text{ in}^3$

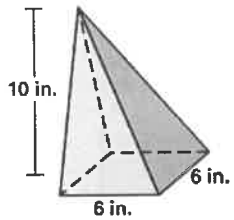
f.



$V = 6(6)(15)$

$= 540 \text{ in}^3$

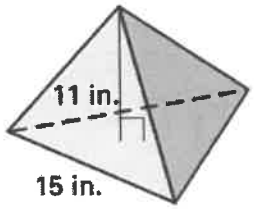
g.



$V = \frac{1}{3}(6)(6)(10)$

$= 120 \text{ in}^3$

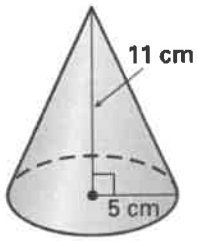
h. The pyramid below has a regular polygon for a base:



$V = \frac{1}{3}\left(\frac{\sqrt{3}}{4}(15)^2\right)(11)$

$= 357.2 \text{ in}^3$

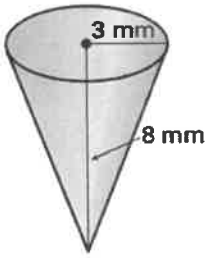
i.



$V = \frac{1}{3}\pi(5)^2(11)$

$= 91.67\pi \text{ cm}^3$

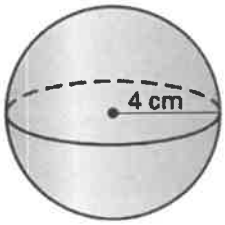
j.



$V = \frac{1}{3}(\pi(3)^2)(8)$

$= 24\pi \text{ mm}^3$

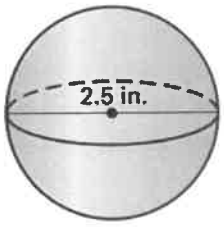
k.



$V = \frac{4}{3}\pi(4)^3$

$= 85.3\pi \text{ cm}^3$

l.



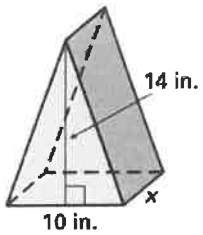
$V = \frac{4}{3}\pi(1.25)^3$

$= 2.6\pi \text{ in}^3$

7. Solve for the variable using the given measurements.

a.

Volume = 455 in.^{3}



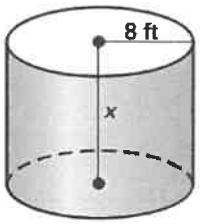
$455 = \frac{1}{3}(10)(x)(14)$

$365 = 140x$

$9.75 \text{ in} = x$

b.

Volume = 2420 ft^3



$2420 = \pi(8)^2(x)$

$12.036 \text{ ft} = x$