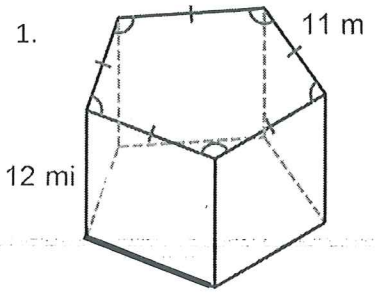
Key

ACC Review for Surface Area and Volume Day ONE (mostly Volume)

Directions: Find the surface area and volume for the following prism.

1.



$SA = 2(5\frac{1}{2}\,9.4^2 \sin 72) + 5(11 \times 12)$

$SA = 1080.2\,m^2$

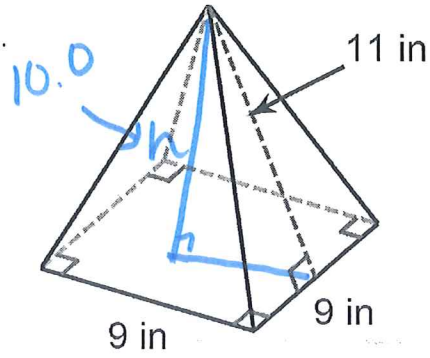
SA= $1080.2\,m^2$

$V = (5\frac{1}{2}(9.4)^2 \sin(72)) \times 12$

V= $2521.1\,m^3$

Directions: Find the surface area and volume for the following pyramid.

2.



$SA = 9 \times 9 + 4(\frac{1}{2} 9 \times 11)$

$SA = 279\,in^2$

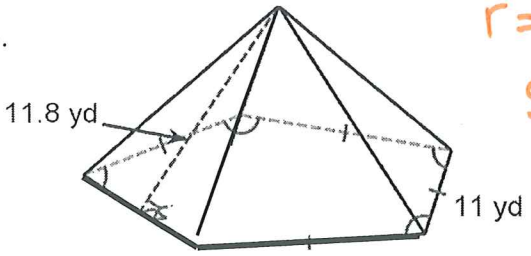
SA= $279\,in^2$

$V = \frac{1}{3}(9 \times 9)10$

V= $270\,in^3$

Directions: Find the surface area for the following pyramid.

3.



$r = 9.4$

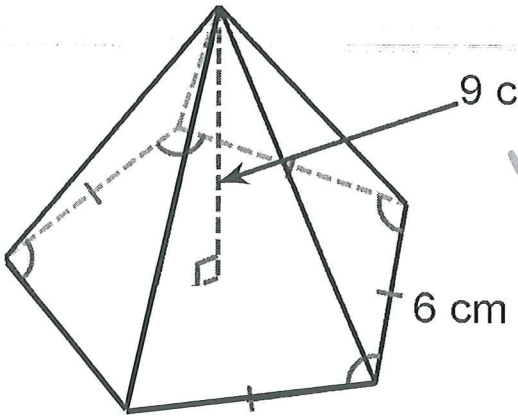
$SA = 5\frac{1}{2}(9.4)^2 \sin(72) + 5(\frac{1}{2} 11 \times 11.8)$

$SA = 534.6\,yd^2$

SA= $534.6\,yd^2$

Directions: Find the volume for the following pyramid.

4.

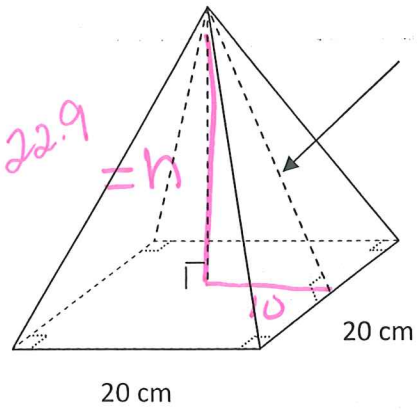


$r = 5.1$

$V = \frac{1}{3}(5\frac{1}{2}(5.1)^2 \sin(72)) \times 9$

V= $185.5\,cm^3$

5. Find surface area and volume.



$SA = 20 \times 20 + 4\left(\frac{1}{2} 20 \times 25\right)$

$SA = 1400 cm^2$

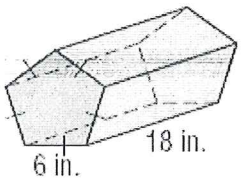
$V = \frac{1}{3} 20 \times 20 \times 22.9$

$V = 3053.3 cm^3$

Find the volume for the following figures.

Directions: Find the volume, and surface area of the solid, round to the nearest tenth if needed.

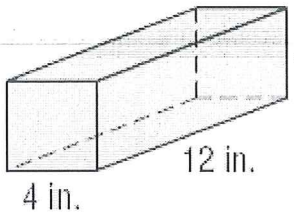
6.



$SA = 663.7 in^2$

$V = 1113.2 in^3$

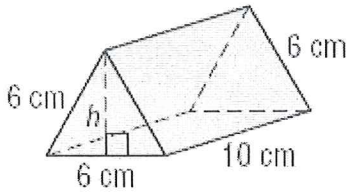
7.



$SA = 224 in^2$

$V = 192 in^3$

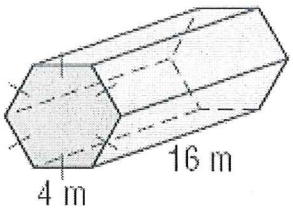
8.



$SA \approx 211.2 cm^2$

$V \approx 155.9 cm^3$

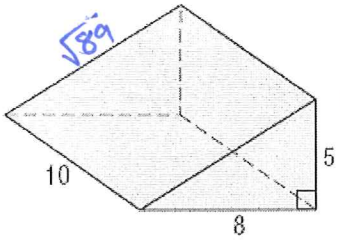
9.



$SA = 467.1 m^2$

$V = 665.1 m^3$

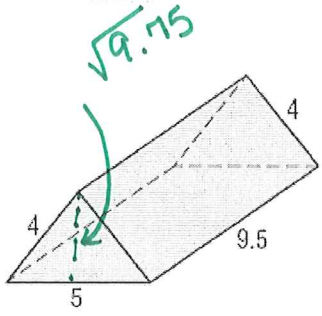
10.



$SA = 264.3 units^2$

$V = 200 u^3$

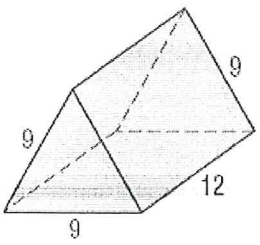
11.



$SA = 139.1 u^2$

$V = 74.2 u^3$

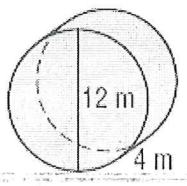
12.



$SA \approx 394.1 u^2$

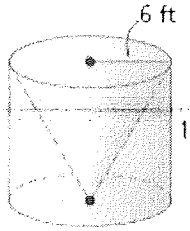
$V \approx 420 u^3$

13.



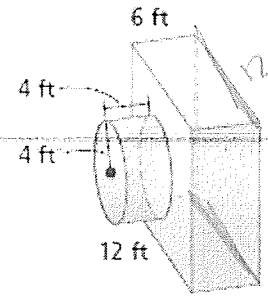
$SA = 377.0 m^2$

$V = 452.4 m^3$

14. 

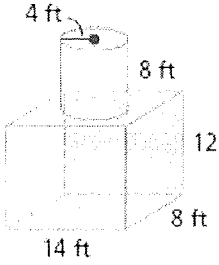
$V = \frac{2}{3}\pi 6^2 \times 10$

$V = 240\pi ft^3$

15. 

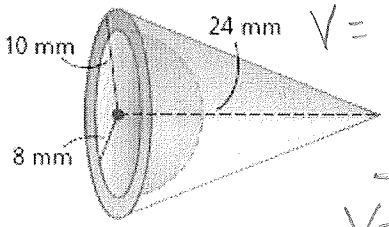
$V = (12 \times 14)6 + \pi 4^2 \times 14$

$1209.1 ft^3$

16. 

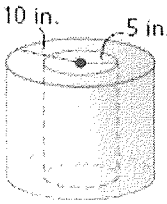
$V = \pi 4^2 \times 8 + (14 \times 8)12$

$V = 1746.1 ft^3$

17. 

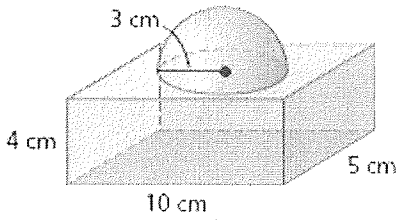
$V = \frac{1}{3}\pi 10^2 \times 24 - \frac{1}{2}\frac{4}{3}\pi 8^3$

$V = 1440.9 mm^3$

18. 

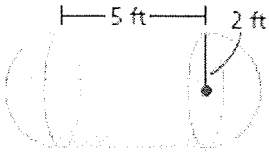
$V = \pi 10^2 \times 15 - \pi 5^2 \times 15$

$V = 1125\pi in^3$

19. 

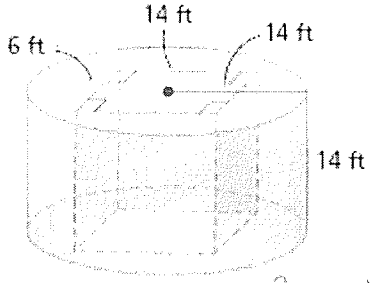
$V = \frac{1}{2}\left(\frac{4}{3}\pi 3^3\right) + 10 \times 5 \times 4$

$V = 256.5 cm^3$

20. 

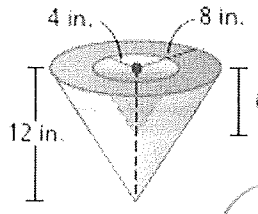
$V = \frac{4}{3}\pi 2^3 + \pi 2^2 .5$

$V = 96.3 ft^3$

21. 

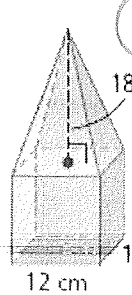
$V = \pi 14^2 \times 14 - (6 \times 14) \times 14$

$V = 7444.5 ft^3$

22. 

$V = \frac{1}{3}\pi 8^2 \times 12 - \frac{1}{3}\pi 4^2 \times 6$

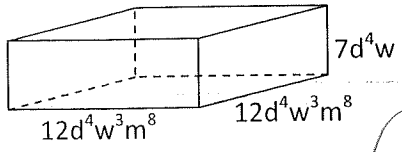
$V = 703.7 in^3$

23. 

$V = \frac{1}{3}12 \times 12 \times 18 + (12 \times 12)12$

$V = 2592 cm^3$

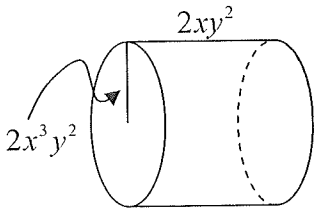
24. Find the expression for the volume of the prism.



$V = 12d^4w^3m^8 \cdot 12d^4w^3m^8 \cdot 7d^4w$

$V = 1008d^{12}w^7m^{16}$

25.



$V = \pi(2x^3y^2)^2 \cdot 2xy^2$

$V = 4x^6y^4 \cdot 2xy^2\pi$

$V = 8x^7y^6\pi$

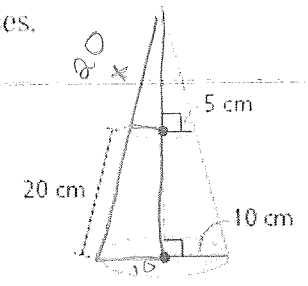
26. A *frustum* of a cone is a part of the cone with two parallel bases. The height of the frustum of the cone is half the height of the original cone.

a. Find the surface area of the original cone.

b. Find the lateral area of the top of the cone.

c. Find the area of the top base of the frustum.

d. Use your results from parts a, b, and c to find the surface area of the frustum of the cone.



$h = 38.73$

a.) $\pi 10^2 + \pi 10 \times 40$

$SA = 500\pi cm^2$

b.) $\pi 5(20)$

b.) 100π

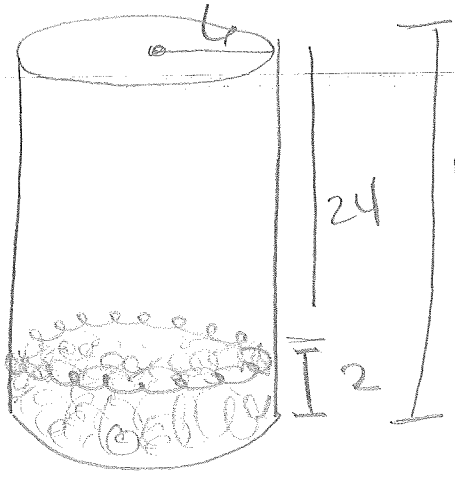
c.) $\pi 5^2$

25π

d.) $500\pi - 100\pi + 25\pi$

$SA = 425\pi cm^2$

27. Susan has a fish tank in the shape of a cylinder that is 26 inches tall. The diameter of the tank is 12 inches. If there are 2 (even) inches of rocks in the bottom, how much water is needed to fill the tank?



$V = \pi 6^2 \times 24$

$V = 2714.3 in^3$