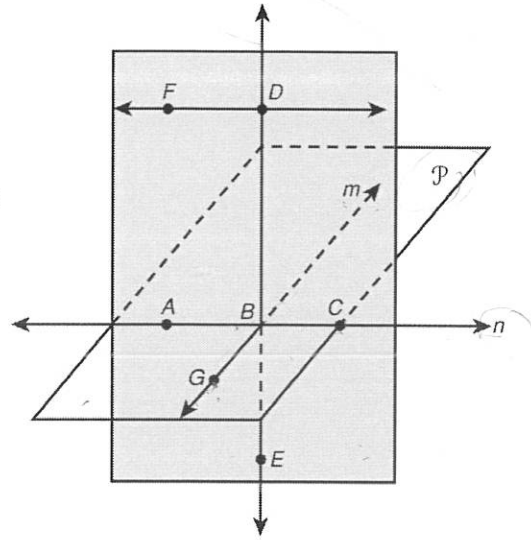


Name: Key
 Date: _____
 Period: _____

Geometry Chapter 1 Study Guide

Use Figure A to answer Questions 1-5

Figure A



1. What is a name for the plane containing point G ?

\mathcal{P}

2. Name the segment that is on plane \mathcal{P} but is NOT on line n ?

\overline{GB}

3. Name a pair of opposite rays

\overrightarrow{BA} \overrightarrow{BC}

4. Name the intersection of the two planes

n

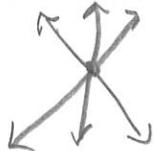
5. Name **FOUR** points on plane \mathcal{P} .

A, B, C, G

6. Draw a ray with endpoint X that passes through Y .



7. Draw three coplanar lines that intersect at one point.



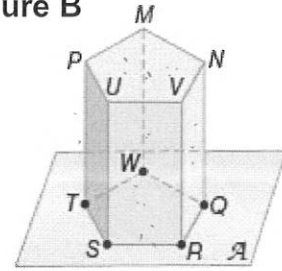
8. Draw two lines that do not intersect.



9. How many plane appear in the Figure B?

7

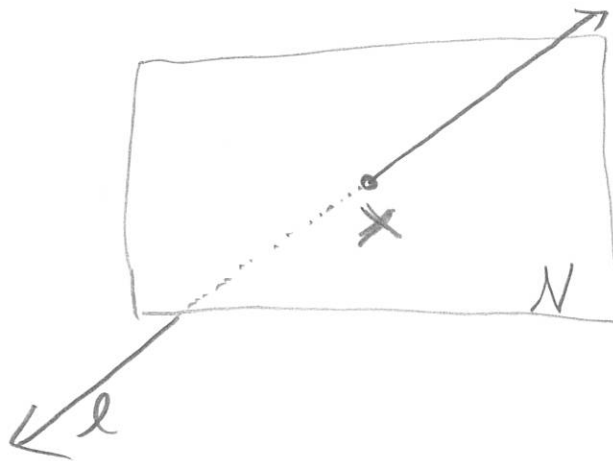
Figure B



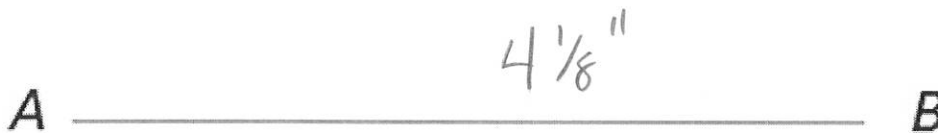
~~10. At what point or in what line do planes JDH, JDE, and EDF intersect.~~

Not in picture

11. Draw and label a figure for the statement planes \mathcal{N} and line ℓ intersect at point X.



12. Use a ruler to measure \overline{AB} to the nearest 16th of an inch



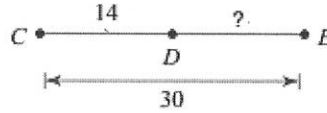
13. Use a ruler to measure \overline{CD} in centimeters.



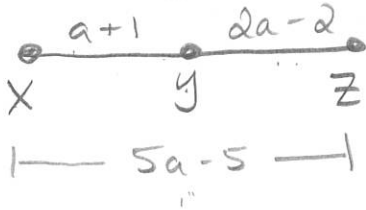
14. Find \overline{DE}

$$30 - 14 = 16$$

$$\overline{DE} = 16$$



15. Find the value of a and \overline{XY} if Y is between X and Z if $\overline{XY} = a + 1$, $\overline{XZ} = 5a - 5$, and $\overline{YZ} = 2a - 2$.



$$a + 1 + 2a - 2 = 5a - 5$$

$$3a - 1 = 5a - 5$$

$$3a = 5a - 4$$

$$\frac{-2a}{-2} = \frac{-4}{-2}$$

$$a = 2$$

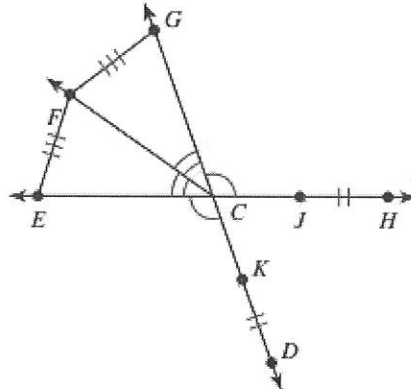
$$\overline{XY} = 2 + 1$$

$$\overline{XY} = 3$$

16. Name the congruent segments and congruent angles shown in the figure.

$$\overline{EF} \cong \overline{GF}$$

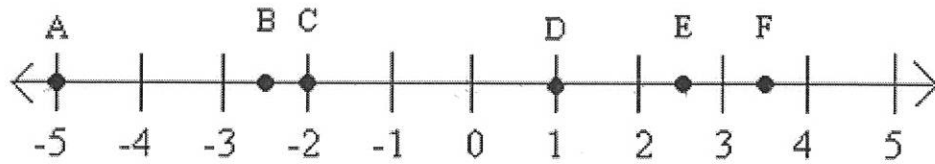
$$\overline{KD} \cong \overline{JH}$$



$$\angle ECF \cong \angle GCF$$

$$\angle GCH \cong \angle ECD$$

17. Use the number line to find each measure.



a. \overline{AE}

$$7.5$$

b. \overline{FB}

$$6$$

18. Find the distance between $C(x_1, y_1)$ and $D(x_2, y_2)$.

$$\begin{aligned}
 d &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\
 &= \sqrt{(3 - (-7))^2 + (7 - (-1))^2} \\
 &= \sqrt{(3 + 7)^2 + (7 + 1)^2} \\
 &= \sqrt{10^2 + 8^2} = \sqrt{100 + 64} = \sqrt{164} = 2\sqrt{41}
 \end{aligned}$$

164
 $\sqrt{164}$
 $2\sqrt{41}$

19. Find the coordinates of M , the midpoint of \overline{ST} , for $S(-10, 8)$ and $T(4, 6)$.

$$\begin{aligned}
 \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) &= \left(\frac{-10 + 4}{2}, \frac{8 + 6}{2} \right) \\
 &= \left(\frac{-6}{2}, \frac{14}{2} \right) = (-3, 7)
 \end{aligned}$$

20. Find the coordinates of Y , the endpoint of \overline{XY} , if $X = (12, -2)$ and the midpoint is $M = (-6, 10)$.

$$\frac{x_1 + x_2}{2} = M_x$$

$$\frac{y_1 + y_2}{2} = M_y$$

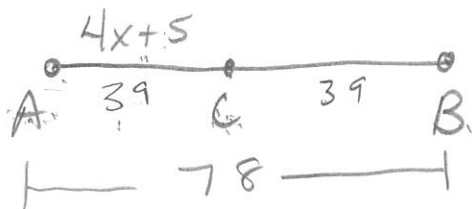
$$\begin{aligned}
 \frac{12 + x}{2} &= -6 \cdot 2 & \frac{-2 + y}{2} &= 10 \cdot 2
 \end{aligned}$$

$$\begin{aligned}
 12 + x &= -12 \\
 -12 & \quad -12 \\
 \hline
 x &= -24
 \end{aligned}$$

$$\begin{aligned}
 -2 + y &= 20 \\
 +2 & \quad +2 \\
 \hline
 y &= 22
 \end{aligned}$$

$$(-24, 22)$$

21. Find the value of x and \overline{AC} if C is the midpoint of \overline{AB} , $\overline{AC} = 4x + 5$, and $\overline{AB} = 78$.



$$\frac{78}{2} = 39$$

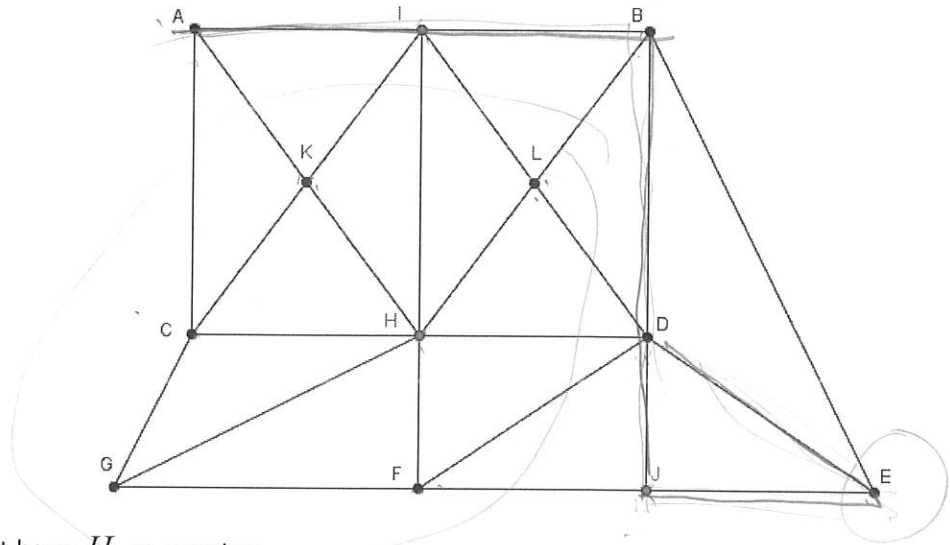
$$\begin{aligned}
 4x + 5 &= 39 \\
 -5 & \quad -5 \\
 \hline
 4x &= 34
 \end{aligned}$$

$$\frac{4x}{4} = \frac{34}{4}$$

$$x = 8.5$$

$$\overline{AC} = 39$$

22. Use the map of a high school shown to answer the following questions



a. Name three angles that have H as a vertex

$\angle LHI$, $\angle KHF$, $\angle DHK$

b. Name the sides of $\angle JED$

~~\overrightarrow{JE}~~ \overrightarrow{EJ} and \overrightarrow{ED}

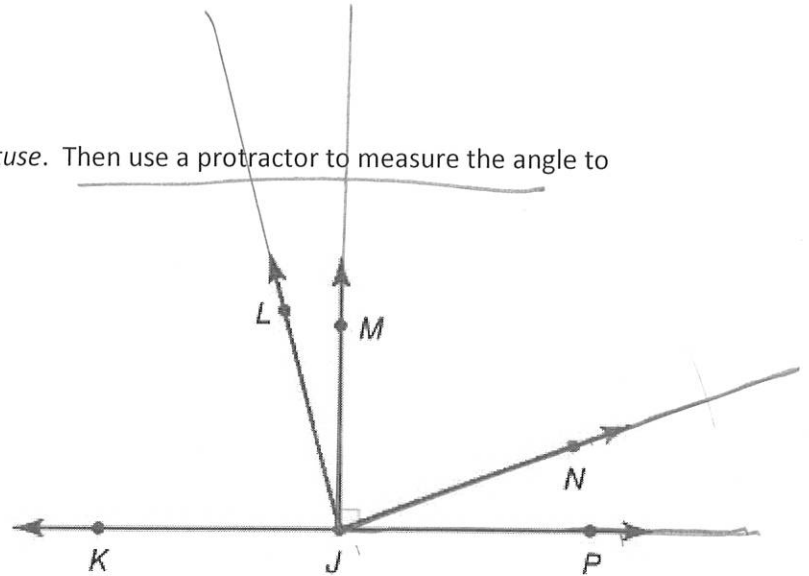
c. What is another name for $\angle KIL$

$\angle LIK$

d. Name a point in the interior of $\angle ABJ$

L

23. Classify each angle as *right*, *acute*, or *obtuse*. Then use a protractor to measure the angle to the nearest degree.



a. $\angle LJP$

105°
obtuse

b. $\angle MJN$

69° acute

c. $\angle KJM$

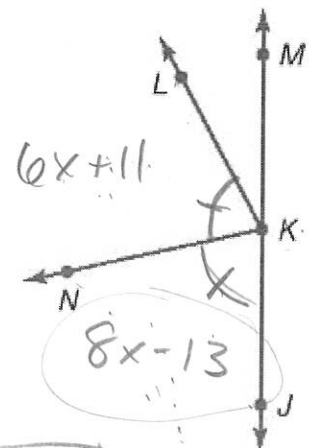
90° right

24. In the figure \overline{KJ} and \overline{KM} are opposite rays, and \overline{KN} bisects $\angle JKL$. If $m\angle JKN = 8x - 13$ and $m\angle NKL = 6x + 11$, find $m\angle JKN$.

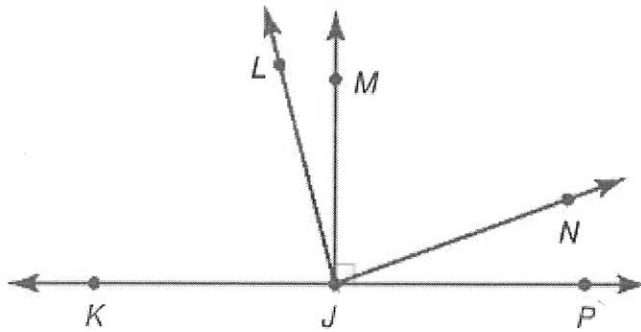
$$\begin{array}{r}
 6x + 11 = 8x - 13 \\
 -8x \quad -8x \\
 \hline
 -2x + 11 = -13 \\
 -11 \quad -11 \\
 \hline
 -2x = -24 \\
 \frac{-2}{-2} \quad \frac{-24}{-2} \\
 x = 12
 \end{array}$$

$$\begin{array}{l}
 8(12) - 13 \\
 96 - 13 \\
 83^\circ
 \end{array}$$

$$\angle JKN = 83^\circ$$



25. Use the figure to name each of the following



a. A ray with end point K



b. A angle with N in its interior



26. Find the measure of two complementary angles if the measure of the larger angle is 12 more than twice the measure of the smaller angle.

$x = \text{small angle}$
 $2x + 12 = \text{large angle}$

$$90 - 26 = 64^\circ$$

$$\boxed{26^\circ \text{ \& } 64^\circ}$$

$$x + 2x + 12 = 90$$

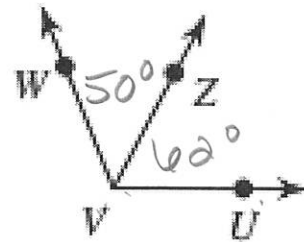
$$3x + 12 = 90$$

$$\begin{array}{r} 3x + 12 = 90 \\ -12 \quad -12 \\ \hline 3x = 78 \quad x = 26^\circ \\ \frac{3x}{3} = \frac{78}{3} \end{array}$$

27. Find $m\angle WVU$ if $m\angle ZVU = 62^\circ$ and $m\angle WVZ = 50^\circ$

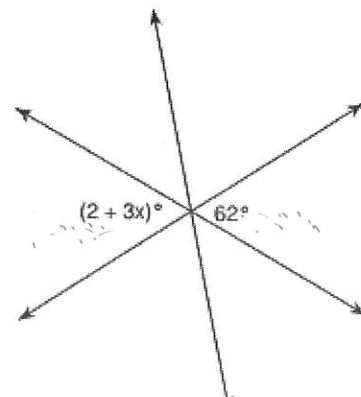
$$50 + 62 = 112^\circ$$

$$\boxed{m\angle WVU = 112^\circ}$$



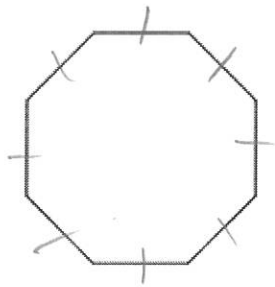
28. Find x

$$\begin{array}{r} 2 + 3x = 62 \\ -2 \quad \quad -2 \\ \hline 3x = 60 \\ \frac{3x}{3} = \frac{60}{3} \quad \boxed{x = 20} \end{array}$$



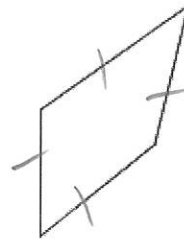
29. Name the polygon by its number of sides. Then classify it as convex or concave and regular or irregular.

a.



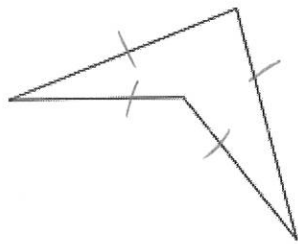
Octagon
Convex
Regular

c.



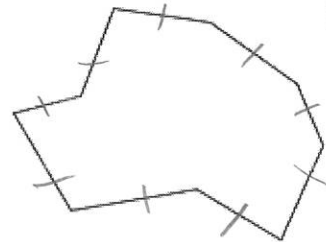
Quadrilateral
Convex
Irregular

b.



Quadrilateral
Concave
Irregular

d.



Nonagon
Concave
Irregular

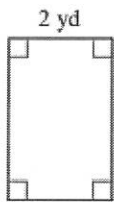
30. Find the perimeter/circumference and area of each figure

a.

$$A = l \cdot w$$

$$= 3.1 \cdot 2$$

$$A = 6.2 \text{ yd}^2$$



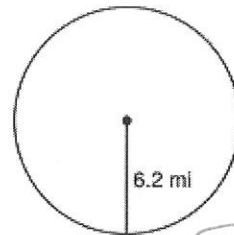
$$P = 2l + 2w$$

$$= 2 \cdot 3.1 + 2 \cdot 2$$

$$= 6.2 + 4$$

$$P = 10.2 \text{ yd}$$

c.



$$C = 2\pi r$$

$$= 2\pi \cdot 6.2$$

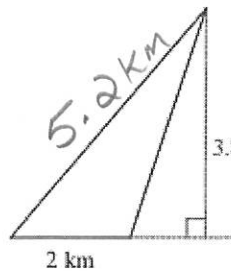
$$\approx 38.9557 \text{ mi}$$

$$A = \pi r^2$$

$$= \pi \cdot 6.2^2$$

$$A \approx 120.763 \text{ mi}^2$$

b.



$$P = 5.2 + 3.8 + 2$$

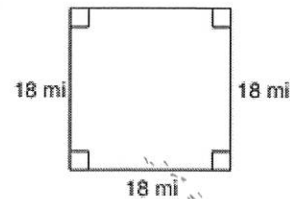
$$P = 11 \text{ km}$$

$$A = \frac{1}{2} b \cdot h$$

$$= \frac{1}{2} \cdot 2 \cdot 3.8$$

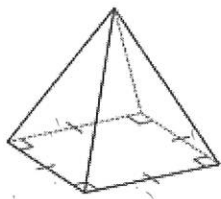
$$A = 3.8 \text{ km}^2$$

d.



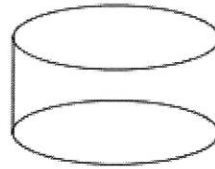
31. Determine whether the solid is a polyhedron. Then name the solid.

a.



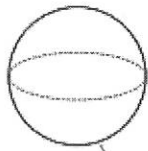
square
pyramid
poly

c.



Cylinder
Not poly

b.



Sphere
Not poly

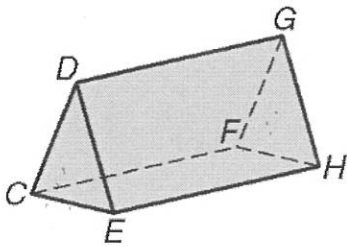
d.



pentagonal
prism

poly

32. Name the bases, faces, edges and vertices of the polyhedron



Base: CDE, FGH
Faces: DGH E, HEFC,
and D G F C

Edges: \overline{DG} , \overline{GH} , \overline{GF} ,
 \overline{FC} , \overline{HE} , \overline{DE} , \overline{DC} , \overline{CE}

Vertices: C, D, E, F, H, G

33. Find the surface area and volume of the solid.

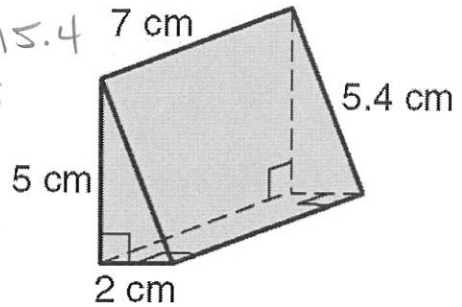
$$SA = Ph + 2B$$

$$= 15.4 \cdot 7 + 2 \cdot 5$$

$$SA = 117.8 \text{ cm}^2$$

$$P = 5 + 2 + 5.4 = 15.4$$

$$B = \frac{1}{2} \cdot 2 \cdot 5 = 5$$



$$V = B \cdot h$$

$$= 5 \cdot 7$$

$$V = 35 \text{ cm}^3$$

34. Find the surface area and volume of the solid.

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

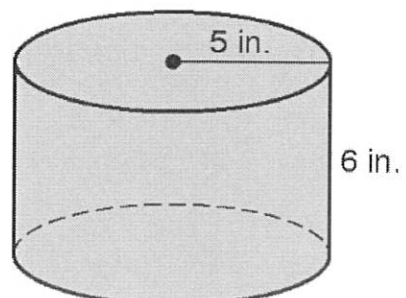
$$= 2\pi \cdot 5 \cdot 6 + 2\pi \cdot 5^2$$

$$SA \approx 345.5751919 \text{ in}^2$$

$$V = \pi r^2 \cdot h$$

$$= \pi \cdot 5^2 \cdot 6$$

$$V \approx 471.238898 \text{ in}^3$$



height missing should be 13.7 cm

35. Find the surface area and volume of the solid.

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

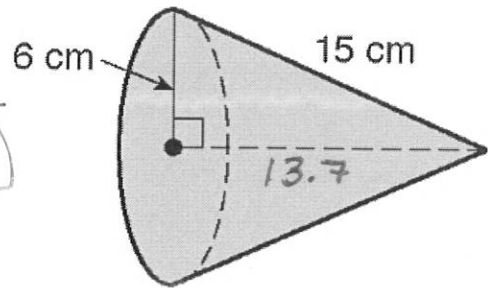
$$= \pi \cdot 6 \cdot 15 + \pi \cdot 6^2$$

$$SA \approx 395.8406744 \text{ cm}^2$$

$$V = \frac{1}{3} \pi r^2 \cdot h$$

$$= \frac{1}{3} \pi \cdot 6^2 \cdot 13.7$$

$$V \approx 516.4778323 \text{ cm}^3$$



36. Find the surface area and volume of the solid.

$$SA = P \cdot h + 2B$$

$$SA = 20 \cdot 16 + 2 \cdot 24$$

$$SA \approx 368 \text{ cm}^2$$

$$P = 2l + 2w$$

$$= 2 \cdot 6 + 2 \cdot 4$$

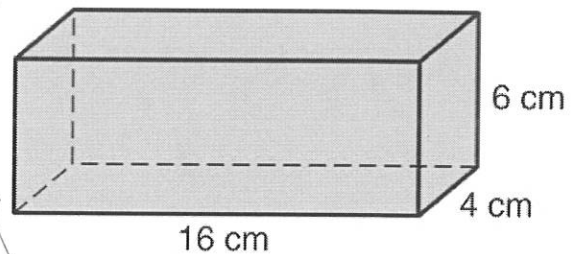
$$= 20$$

$$B = l \cdot w$$

$$= 6 \cdot 4$$

$$= 24$$

$$P = 2l + 2w \quad B = l \cdot w$$



$$V = l \cdot w \cdot h$$

$$= 6 \cdot 4 \cdot 16$$

$$V = 384 \text{ cm}^3$$

37. Find the surface area and volume of the solid.

$$SA = \frac{1}{2} P l + B$$

$$SA = \frac{1}{2} \cdot 26 \cdot 8.7 + 42$$

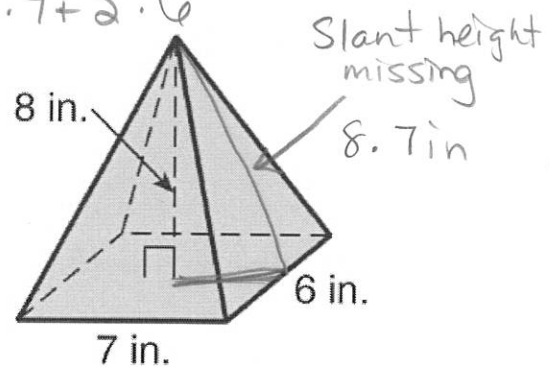
$$SA = 155.17 \text{ in}^2$$

$$P = 2l + 2w = 2 \cdot 7 + 2 \cdot 6$$

$$P = 26$$

$$B = l \cdot w = 7 \cdot 6$$

$$B = 42$$



$$V = \frac{1}{3} B \cdot h$$

$$= \frac{1}{3} \cdot 42 \cdot 8$$

$$V = 112 \text{ in}^3$$

38. Find the surface area and volume of the solid below

$$SA = 4\pi r^2$$

$$= 4 \cdot \pi \cdot 8^2$$

$$SA \approx 804.2477193 \text{ cm}^2$$

$$V = \frac{4}{3} \pi r^3 = \frac{4}{3} \pi \cdot 8^3$$

$$V \approx 2144.660585 \text{ cm}^3$$

