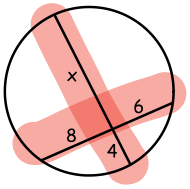
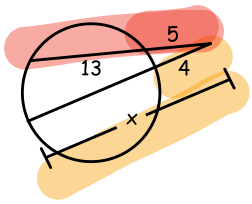
Geometry Unit 4B Circles and Volume Review Name: Key Block: __

1. Find the value of x.



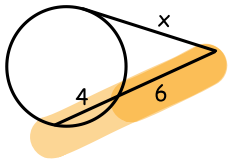
$a(b)=c(d)$
$4(x)=8(6)$
$\frac{4x}{4}=\frac{48}{4}$
$x=12$

2. Find the value of x.



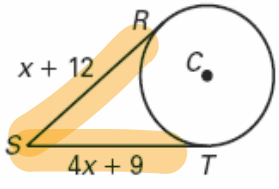
$a(a+b)=c(c+d)$
$5(5+13)=4(x)$
$\frac{90}{4}=\frac{4x}{4}$
$x=22.5$

3. Find the value of x.



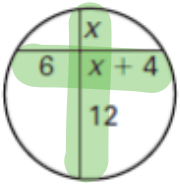
$a^2=b(b+c)$
$x^2=6(6+4)$
$\sqrt{x^2}=\sqrt{60}$
$x=7.7$

4. Find the value of x.



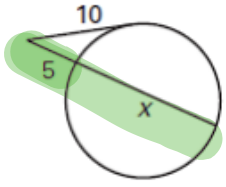
$x+12=4x+9$
$-x \quad -x$
$\frac{3}{3}=\frac{3x}{3}$
$x=1$

5. Find the value of x.



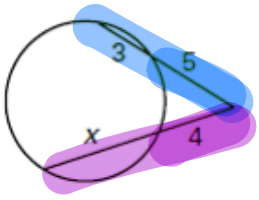
$a(b)=c(d)$
$6(x+4)=x(12)$
$6x+24=12x$
$-6x \quad -6x$
$\frac{24}{6}=\frac{6x}{6}$
$x=4$

6. Find the value of x.



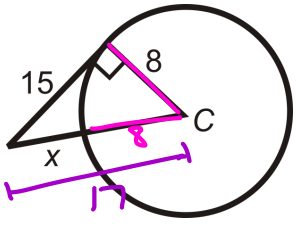
$a^2=b(b+c)$
$10^2=5(5+x)$
$100=25+5x$
$-25 \quad -25$
$\frac{75}{5}=\frac{5x}{5}$
$x=15$

7. Find the value of x.



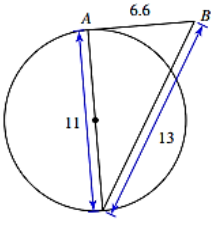
$a(a+b)=c(c+d)$
$5(5+3)=4(4+x)$
$40=16+4x$
$-16 \quad -16$
$\frac{24}{4}=\frac{4x}{4}$
$x=6$

8. Find x.



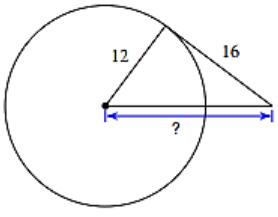
$a^2+b^2=c^2$
$15^2+8^2=c^2$
$\sqrt{289}=\sqrt{c^2}$
$c=17$
$x=9$

9. Determine if AB is tangent to the circle.



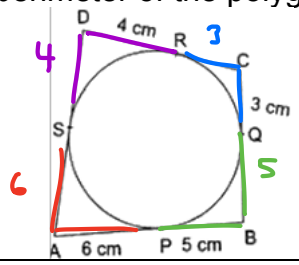
$6.6^2+11^2=13^2$
$164.56 \neq 169$
No

10. Find the missing length.



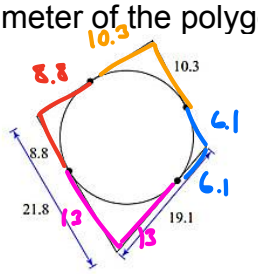
$a^2+b^2=c^2$
$12^2+16^2=c^2$
$\sqrt{400}=\sqrt{c^2}$
$c=29$

11. Find the perimeter of the polygon.



P=36

12. Find the perimeter of the polygon.



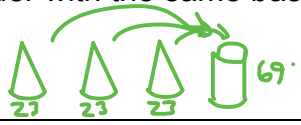
P=76.4

13. If the volume of a prism is 60 in^3, what is the volume of a pyramid with the same base area and height?

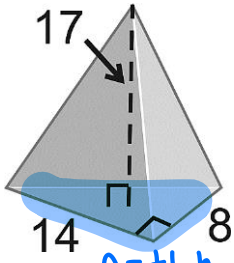
60 = 20 + 20 + 20

20

14. If the volume of a cone is 23 in^3, what is the volume of a cylinder with the same base area and height?



15. Find the volume of the figure.



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

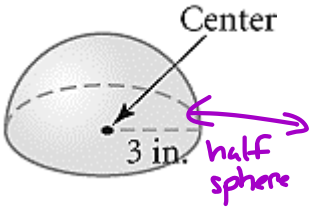
$V = \frac{1}{3}(56)(17)$

$V = 317.3$

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

$= \frac{1}{2}(14)(8) = 56$

16. Find the volume of the hemishpere.



half sphere

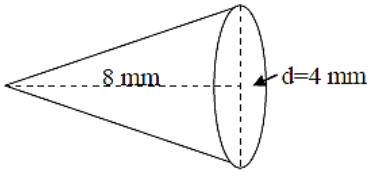
$V = \frac{4}{3}\pi r^3$

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

$= 36\pi \div 2$

$V = 18\pi \approx 56.5$

17. Find the volume of the cone.

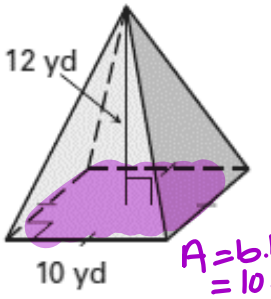


$V = \frac{1}{3}\pi r^2 h$

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

$= \frac{32\pi}{3} \approx 33.5$

18. Find the volume of square based pyramid.



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

$V = \frac{1}{3}(100)(12)$

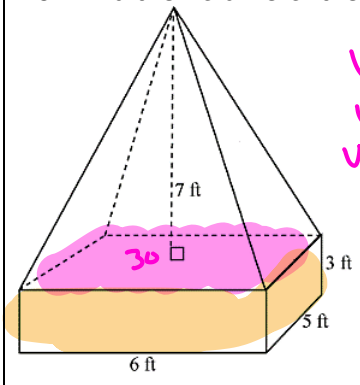
$V = 400$

$A = b \cdot h$

$= 10 \cdot 10$

$= 100$

19. Find the volume of the figure below.



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

$V = \frac{1}{3}(30)(7)$

$V = 70$

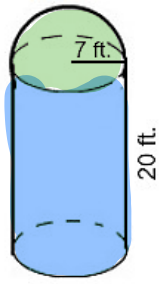
$V = l \cdot w \cdot h$

$= 6 \cdot 5 \cdot 3$

$= 90$

$70 + 90 = 160$

20. Find the volume of the silo.



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

$= \left(\frac{4}{3}\pi(7)^3\right) \div 2$

$= 718.4$

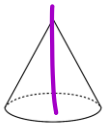
$V = \pi r^2 h$

$= \pi(7)^2(20)$

$= 3078.8$

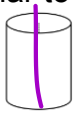
$718.4 + 3078.8 = 3797.16$

21. What is the cross-section of a cone if you cut it perpendicular to the base?

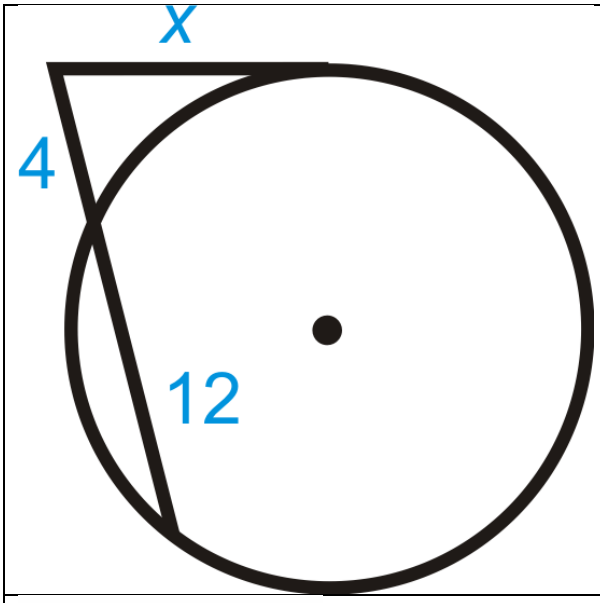


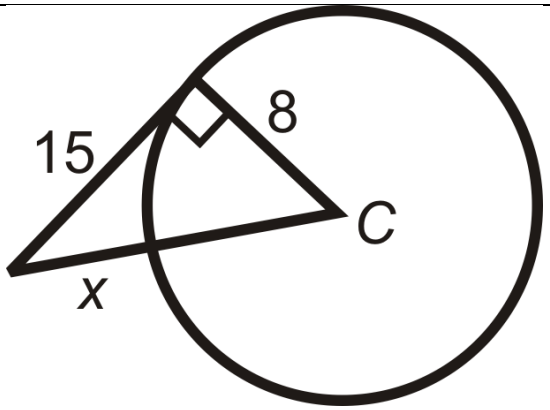
triangle

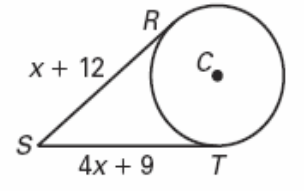
22. What is the cross section of a cylinder if you cut it perpendicular to the base?

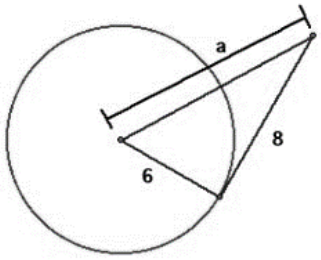


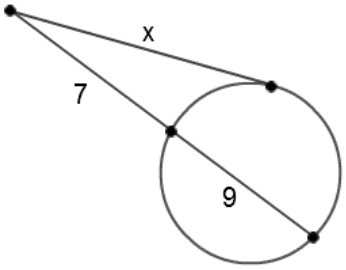
rectangle

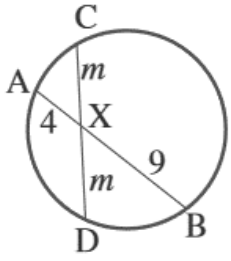


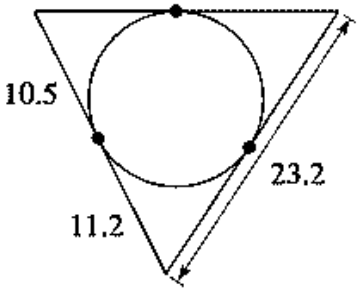


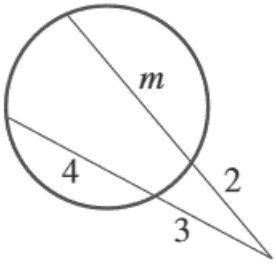




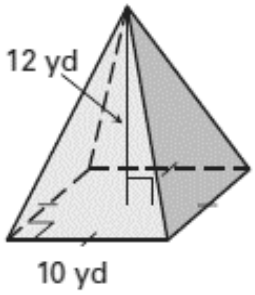






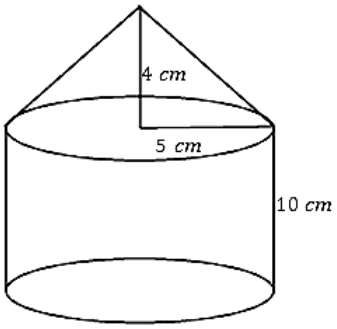


Find the volume of the pyramid below.

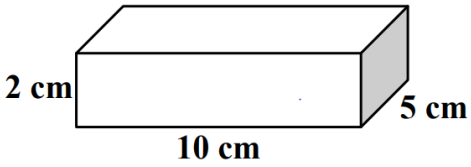


Find the volume of a cone with diameter 8 cm and a height of 10 cm.

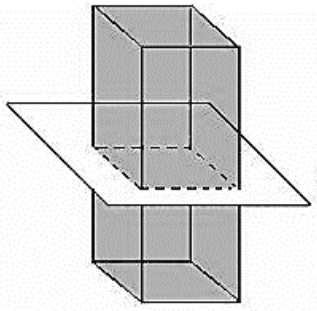
Find the volume of the composite figure.



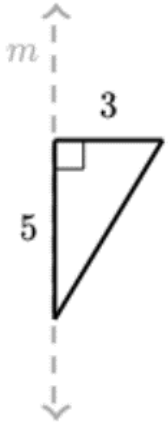
Find the volume of the prism.



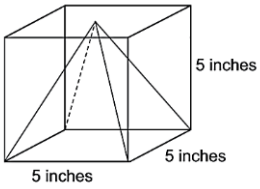
11. Name the cross section of the prism cut horizontally.



What solid 3D object is produced by rotating the triangle about line m?



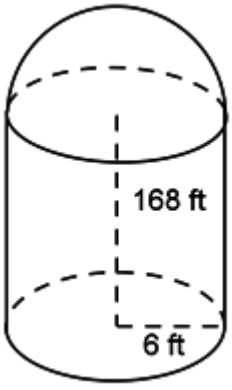
Extra Credit: A square pyramid is package inside a box.



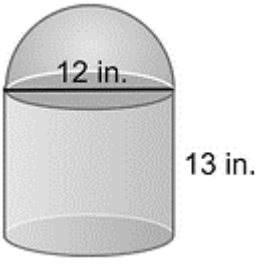
The space inside the box around the pyramid is then filled with protective foam. About how many cubic inches of foam is needed to fill the space around the pyramid?

a. 8 cubic inches
b. 41 cubic inches
c. 83 cubic inches
d. 125 cubic inches

What is the volume of grain that could completely fill this silo?



Find the volume of the silo.



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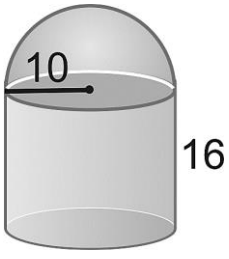
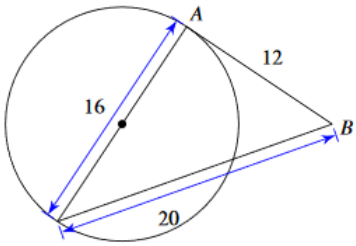
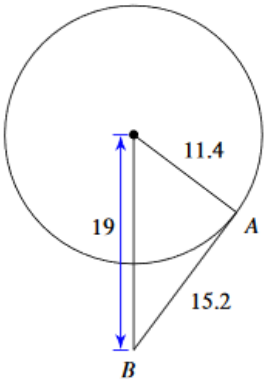


Determine if line AB is tangent to the circle.

Determine if line AB is tangent to the circle.



The volume of a soccer ball is 6 cubic feet. What is the radius of the soccer ball?



The volume of a soccer ball is 6 cubic feet. What is the radius of the soccer ball?

21. The density of pine is generally about $0.5\ g/cm^3$. What is the mass of a $800\ cm^3$ piece of pine?

22. There are 35,000 bats roosting in a pyramid-shaped vaulted cave ceiling that has a height of 30 meters and a rectangular floor that measures 75 by 100 meters. What is the average density of the bat population in the cave?

16. Answer: By Cavalieri's principle, each cross-section between two stacks of cards or coins is the same, and the heights of each solid are the same, so the two volumes are equal.