Mr. Wilfong's Snow Packet

Math: Geometry

Days 17 – 21

Instructions: Read ALL instructions carefully.

1. This document contains 5 assignments for this class. Please do one assignment per day.

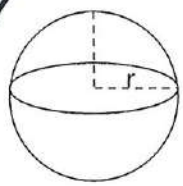
2. Be sure to follow all directions on the pages below and given by your teacher in class. You may be asked to turn in work on your own paper or digitally.

3. Turn in the completed work to your teacher on the day you return to school. If you have technology issues, family emergencies, or illness you may have up to five days to turn work in.

Volume & Surface Area

Formula Cheat Sheet

Sphere



Volume

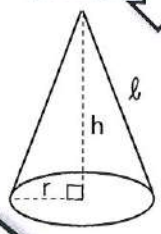
$\frac{4}{3} \cdot \pi \cdot r^3$

Surface Area

$4 \cdot \pi \cdot r^2$

Surface area is in square units!

Cone



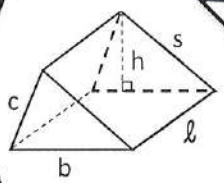
Volume

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

Surface Area

$\pi \cdot r^2 + \pi \cdot r \cdot \ell$

Triangular Prism



Volume

$(\frac{1}{2} \cdot b \cdot h) \cdot \ell$

Surface Area

$b \cdot h + \ell \cdot s + \ell \cdot b + \ell \cdot c$

Cylinder

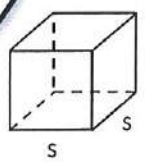
Volume

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

Surface Area

$2 \cdot \pi \cdot r^2 + 2 \cdot \pi \cdot r \cdot h$

Cube



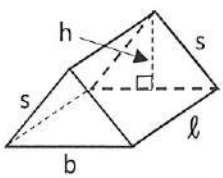
Volume

$s \cdot s \cdot s = s^3$

Surface Area

$6 \cdot s \cdot s = 6 \cdot s^2$

If Isosceles



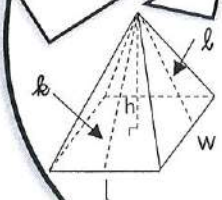
Volume

$(\frac{1}{2} \cdot b \cdot h) \cdot \ell$

Surface Area

$b \cdot h + 2 \cdot \ell \cdot s + \ell \cdot b$

Rectangular Pyramid



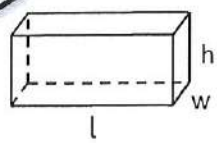
Volume

$\frac{1}{3} \cdot l \cdot w \cdot h$

Surface Area

$l \cdot w + \ell \cdot w + k \cdot l$

Rectangular Prism



Volume

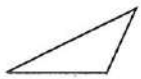
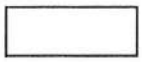
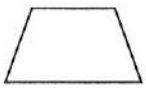
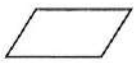
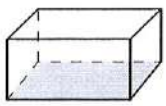
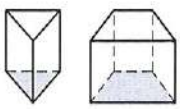
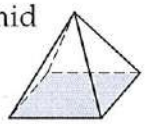
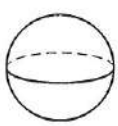
$l \cdot w \cdot h$

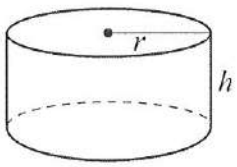
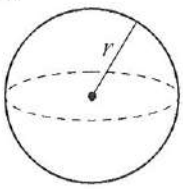
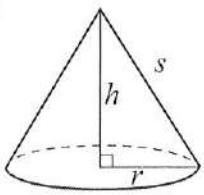
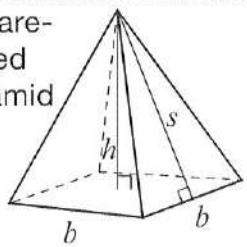
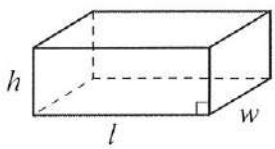
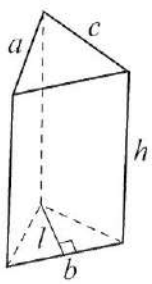
Surface Area

$2 \cdot l \cdot w + 2 \cdot l \cdot h + 2 \cdot w \cdot h$

Volume is in cubic units!

Formula Reference Sheet

Shape	Formulas for Area (A) and Circumference (C)
Triangle 	$A = \frac{1}{2}bh = \frac{1}{2} \times \text{base} \times \text{height}$
Rectangle 	$A = lw = \text{length} \times \text{width}$
Trapezoid 	$A = \frac{1}{2}(b_1 + b_2)h = \frac{1}{2} \times \text{sum of bases} \times \text{height}$
Parallelogram 	$A = bh = \text{base} \times \text{height}$
Circle 	$A = \pi r^2 = \pi \times \text{square of radius}$ $C = 2\pi r = 2 \times \pi \times \text{radius}$ $C = \pi d = \pi \times \text{diameter}$
Figure	**Formulas for Volume (V) and Surface Area (SA)**
Rectangular Prism 	$V = lwh = \text{length} \times \text{width} \times \text{height}$ $SA = 2lw + 2hw + 2lh$ $= 2(\text{length} \times \text{width}) + 2(\text{height} \times \text{width}) + 2(\text{length} \times \text{height})$
General Prisms 	$V = Bh = \text{area of base} \times \text{height}$ $SA = \text{sum of the areas of the faces}$
Right Circular Cylinder 	$V = Bh = \text{area of base} \times \text{height}$ $SA = 2B + Ch = (2 \times \text{area of base}) + (\text{circumference} \times \text{height})$
Square Pyramid 	$V = \frac{1}{3}Bh = \frac{1}{3} \times \text{area of base} \times \text{height}$ $SA = B + \frac{1}{2}P\ell$ $= \text{area of base} + (\frac{1}{2} \times \text{perimeter of base} \times \text{slant height})$
Right Circular Cone 	$V = \frac{1}{3}Bh = \frac{1}{3} \times \text{area of base} \times \text{height}$ $SA = B + \frac{1}{2}C\ell = \text{area of base} + (\frac{1}{2} \times \text{circumference} \times \text{slant height})$
Sphere 	$V = \frac{4}{3}\pi r^3 = \frac{4}{3} \times \pi \times \text{cube of radius}$ $SA = 4\pi r^2 = 4 \times \pi \times \text{square of radius}$

Geometric Figure	Surface Area	Volume
Cylinder 	$A_{\text{base}} = \pi r^2$ $A_{\text{lateral surface}} = 2\pi rh$ $A_{\text{total}} = 2A_{\text{base}} + A_{\text{lateral surface}}$ $= 2\pi r^2 + 2\pi rh$	$V = (A_{\text{base}})(\text{height})$ $V = \pi r^2 h$
Sphere 	$A = 4\pi r^2$	$V = \frac{4\pi r^3}{3}$ or $V = \frac{4}{3}\pi r^3$
Cone 	$A_{\text{base}} = \pi r^2$ $A_{\text{lateral surface}} = \pi rs$ $A_{\text{total}} = A_{\text{base}} + A_{\text{lateral surface}}$ $= \pi r^2 + \pi rs$	$V = \frac{(A_{\text{base}})(\text{height})}{3}$ $V = \frac{\pi r^2 h}{3}$ or $V = \frac{1}{3}\pi r^2 h$
Square-based pyramid 	$A_{\text{base}} = b^2$ $A_{\text{triangle}} = \frac{bs}{2}$ $A_{\text{total}} = A_{\text{base}} + 4A_{\text{triangle}}$ $= b^2 + 2bs$	$V = \frac{(A_{\text{base}})(\text{height})}{3}$ $V = \frac{b^2 h}{3}$ or $V = \frac{1}{3}b^2 h$
Rectangular prism 	$A = 2(wh + lw + lh)$	$V = (A_{\text{base}})(\text{height})$ $V = lwh$
Triangular prism 	$A_{\text{base}} = \frac{bl}{2}$ $A_{\text{rectangles}} = ah + bh + ch$ $A_{\text{total}} = 2A_{\text{base}} + A_{\text{rectangles}}$ $= bl + ah + bh + ch$	$V = (A_{\text{base}})(\text{height})$ $V = \frac{blh}{2}$ or $V = \frac{1}{2}blh$

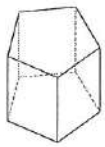
Kuta Software - Infinite Geometry

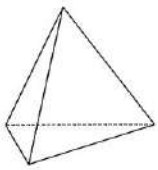
Name_____

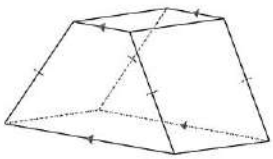
Identifying Solid Figures

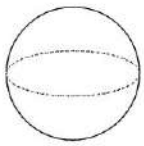
Date_____ Period____

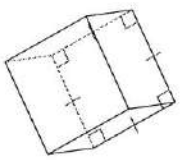
Name each figure.

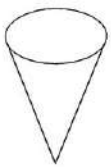
1) 

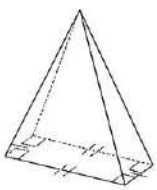
2) 

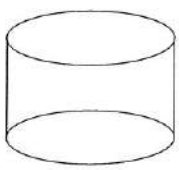
3) 

4) 

5) 

6) 

7) 

8) 

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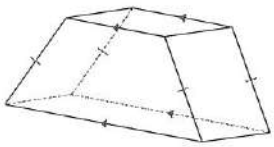

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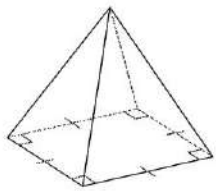
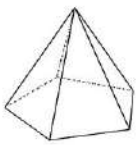
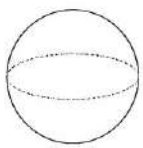


11)



12)

13)



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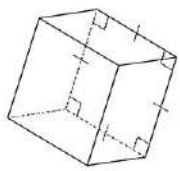

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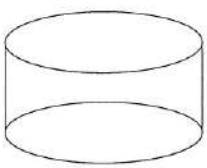
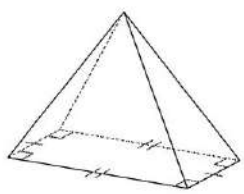


16)



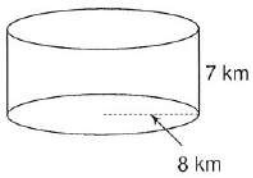
Kuta Software - Infinite Geometry Name_____

Volume of Prisms and Cylinders

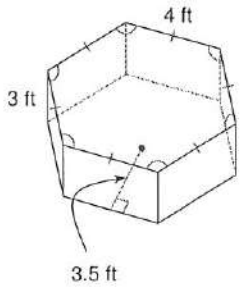
Date_____ Period____

Find the volume of each figure. Round your answers to the nearest tenth, if necessary.

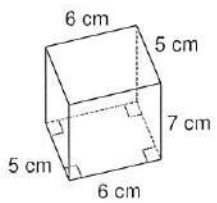
1)



2)



3)



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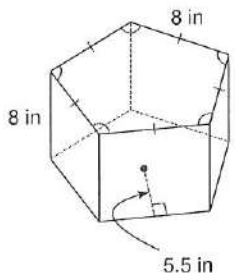
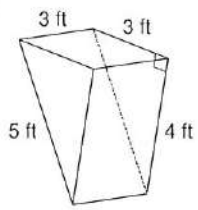
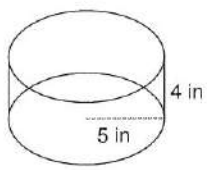


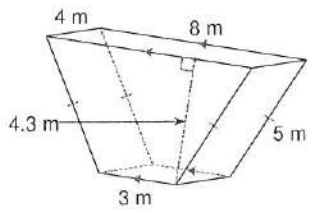
5)



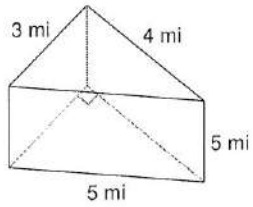
6)



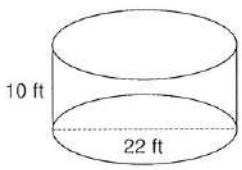
7)



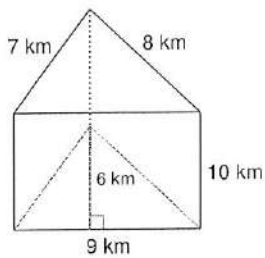
8)



9)



10)



11) A cylinder with a radius of 4 yd and a height of 5 yd.

12) A square prism measuring 6 km along each edge of the base and 5 km tall.

13) A hexagonal prism 5 yd tall with a regular base measuring 5 yd on each edge and an apothem of length 4.3 yd.

14) A trapezoidal prism of height 6 km. The parallel sides of the base have lengths 5 km and 3 km. The other sides of the base are each 2 km. The trapezoid's altitude measures 1.7 km.

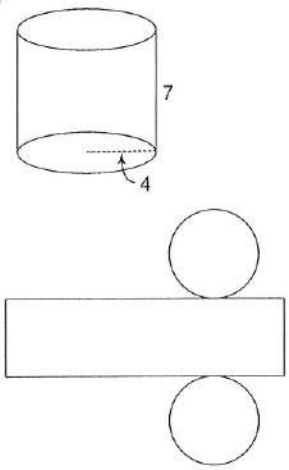
 Name_____

Surface Area of Prisms and Cylinders

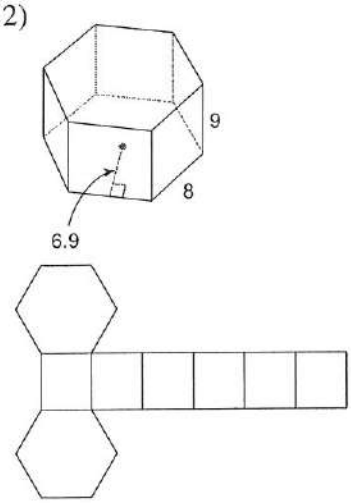
Date_____ Period____

Copy the measurements given onto the net of each solid.

1)



2)



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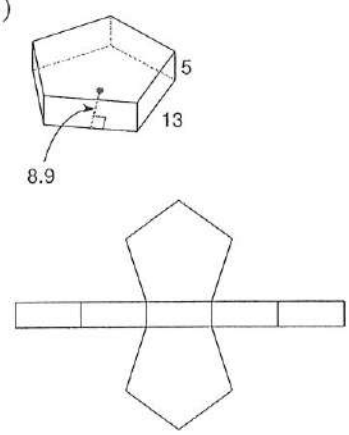

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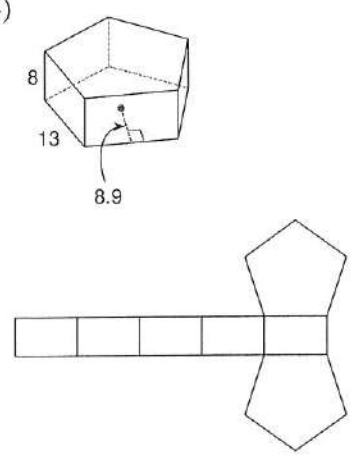

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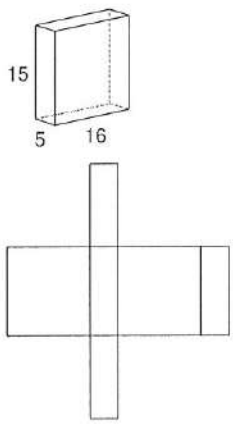

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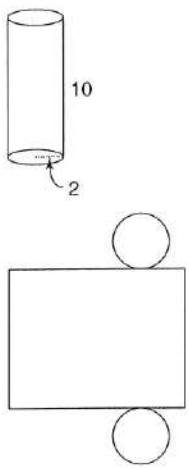
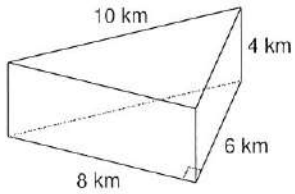


Find the lateral area and surface area of each figure. Round your answers to the nearest thousandth, if necessary.

7)



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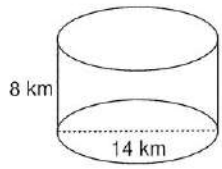

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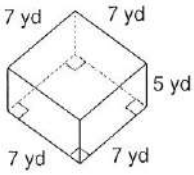

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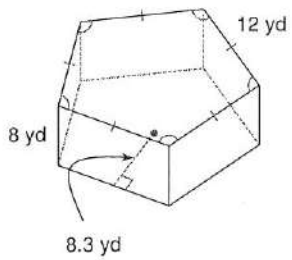

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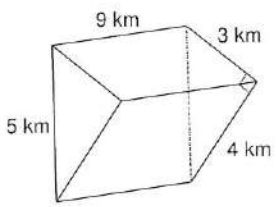

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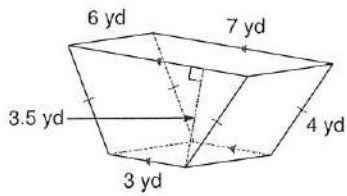


Find the lateral area and surface area of each figure. Round your answers to the nearest tenth, if necessary.

13) A hexagonal prism 6 ft tall with a regular base measuring 9 ft on each edge and an apothem of length 7.8 ft.

14) A prism 2 m tall. The base is a trapezoid whose parallel sides measure 7 m and 3 m. The other sides are each 4 m. The altitude of the trapezoid measures 3.5 m.

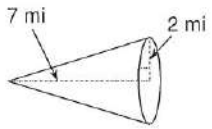
Kuta Software - Infinite Geometry Name_____

Volume of Pyramids and Cones

Date_____ Period____

Find the volume of each figure. Round your answers to the nearest tenth, if necessary.

1)



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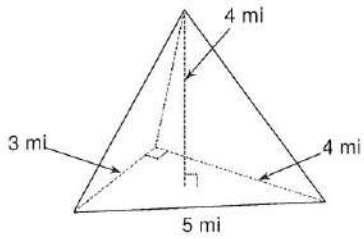

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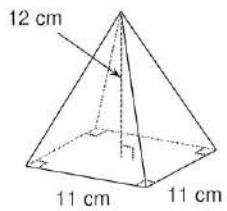

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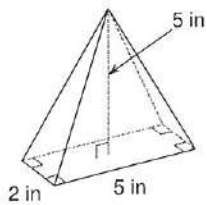

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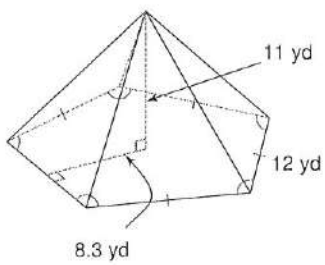
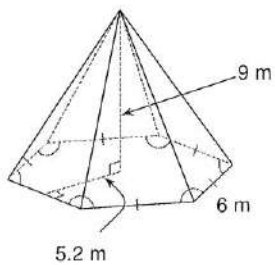


6)



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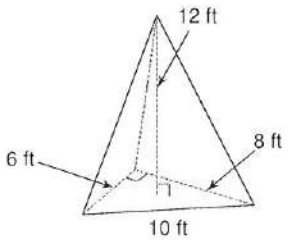
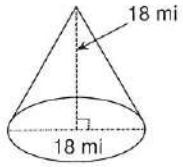


8)



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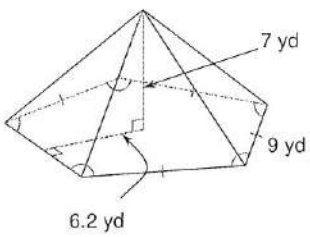

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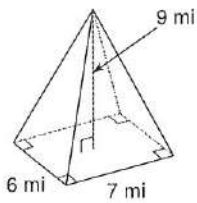


11) A square pyramid measuring 10 yd along each edge of the base with a height of 6 yd.

12) A pyramid 5 m tall with a right triangle for a base with side lengths 6 m, 8 m, and 10 m.

13) A cone with radius 4 m and a height of 12 m.

14) A hexagonal pyramid 11 ft tall with a regular base measuring 6 ft on each side and an apothem of length 5.2 ft.

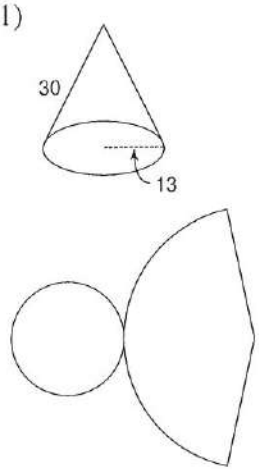
Kuta Software - Infinite Geometry Name_____

Surface Area of Pyramids and Cones

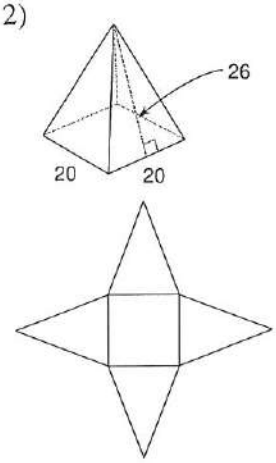
Date_____ Period____

Copy the measurements given onto the net of each solid.

1)



2)



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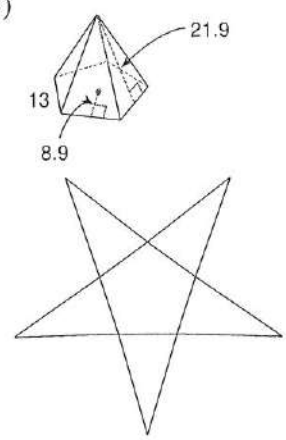

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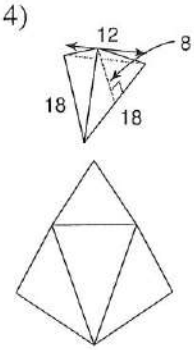
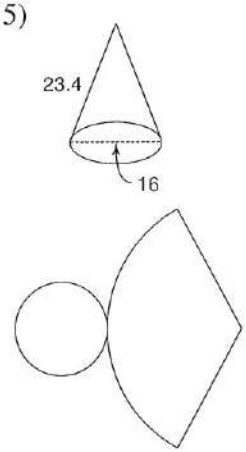
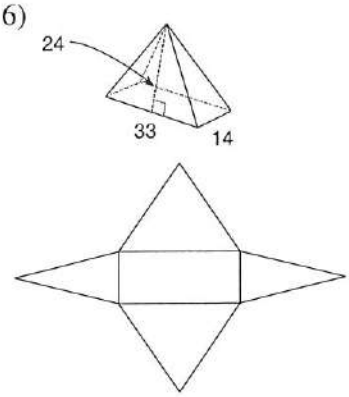


5)

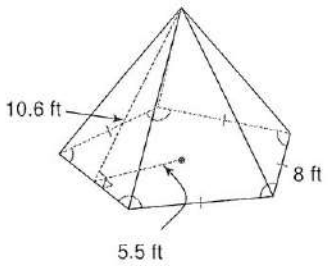


6)



Find the lateral area and surface area of each figure. Round your answers to the nearest tenth, if necessary.

7)



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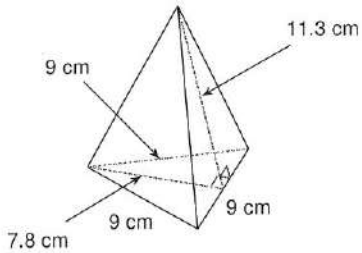

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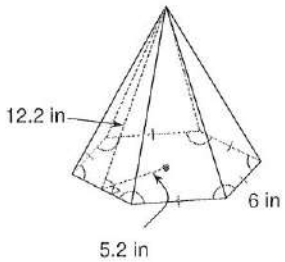

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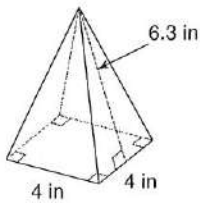

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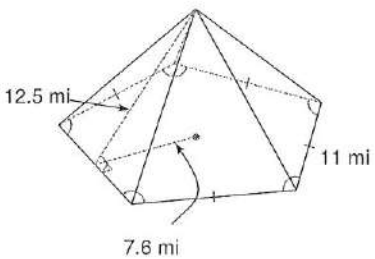

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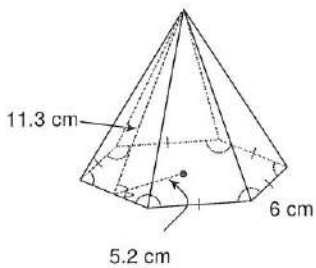

13) A pyramid with slant height 6.8 mi whose triangular base measures 11 mi on each side. Each altitude of the base measures 9.5 mi.

14) A rectangular pyramid measuring 4 in and 9 in along the base, with slant heights of 10.1 in and 9.2 in, respectively.