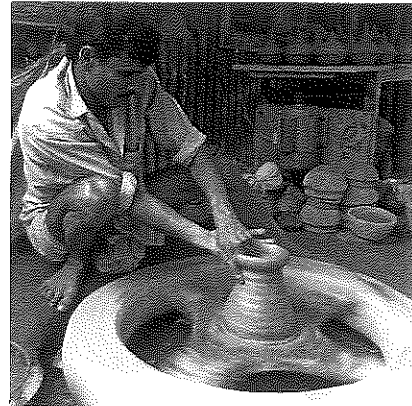


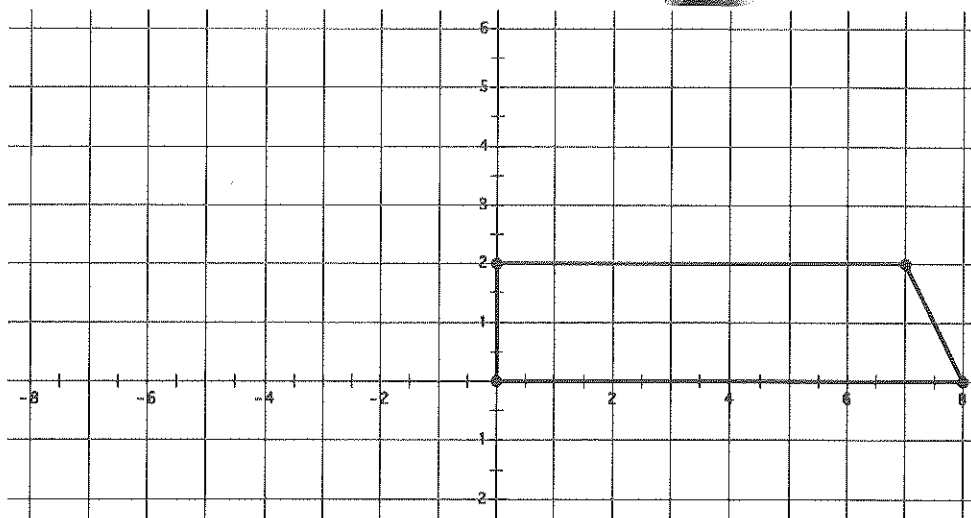
5.3 Take Another Spin

A Solidify Understanding Task



CC BY Ieshraq the potter
<https://flic.kr/p/7r4mYS>

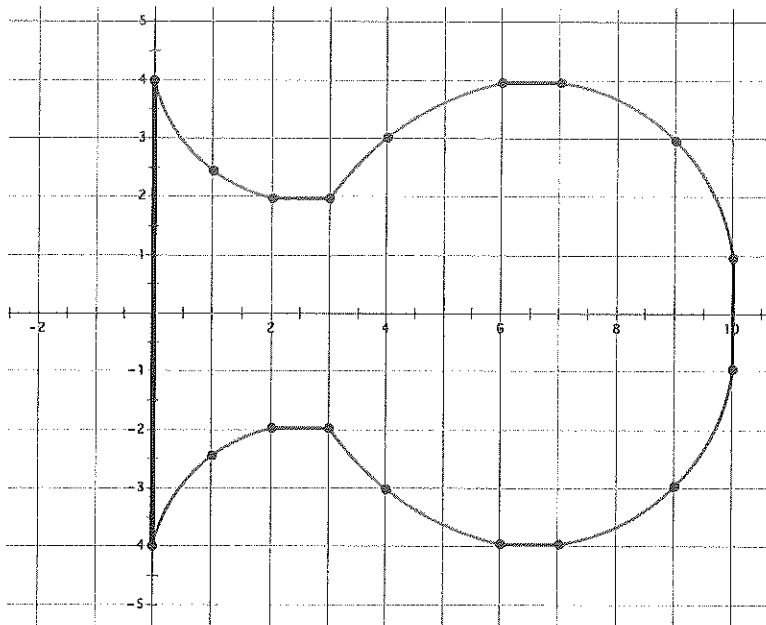
The trapezoid shown below is revolved about the y -axis to form a frustum (e.g., bottom slice) of a cone.



1. Draw a sketch of the three-dimensional object formed by rotating the trapezoid about the y -axis.
2. Find the volume of the object formed. Explain how you used the diagram to help you find the volume.

You have made use of the formulas for cylinders and cones in your work with solids of revolution. Sometimes a solid of revolution cannot be decomposed exactly into cylinders and cones. We can approximate the volume of solids of revolution whose cross sections include curved edges by replacing them with line segments.

3. The following diagram shows the cross section of a flower vase. Approximate the volume of the vase by using line segments to approximate the curved edges. (Show the line segments you used to approximate the figure on the diagram.)



4. Describe and carry out a strategy that will improve your approximation for the volume of the vase.

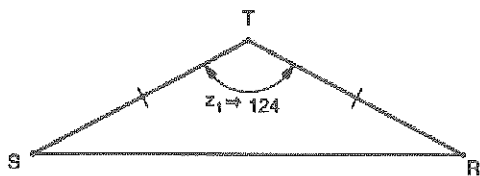
READY, SET, GO! Name _____ Period _____ Date _____

READY

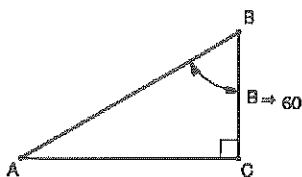
Topic: Finding missing angles in a triangle

Use the given information and what you know about triangles to find the missing angles.
 (All angle measures are in degrees.)

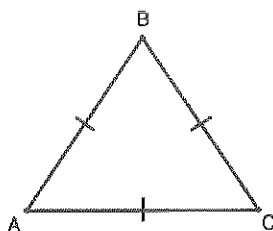
1.



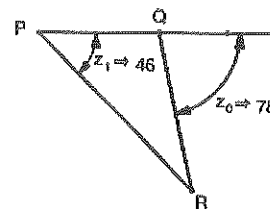
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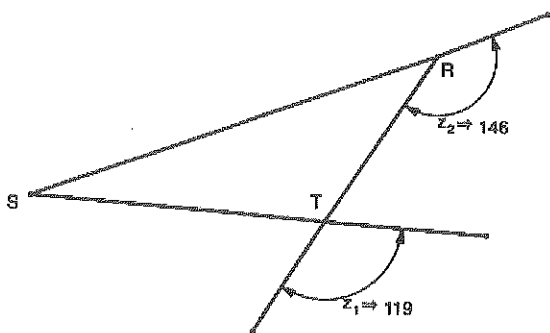
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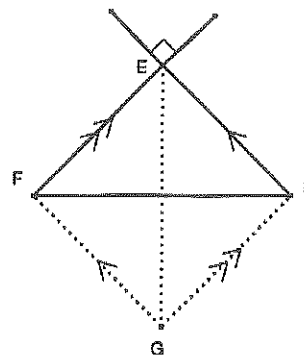
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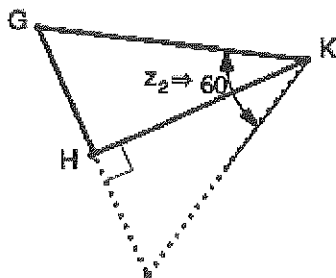
5.



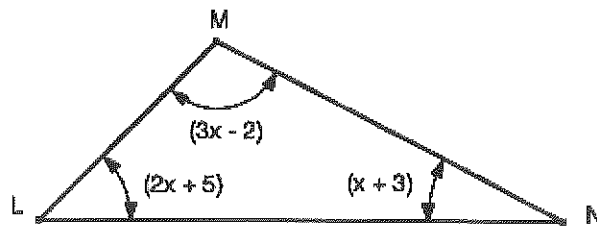
6. $\overline{EG} \cong \overline{FH}$



7.



8.



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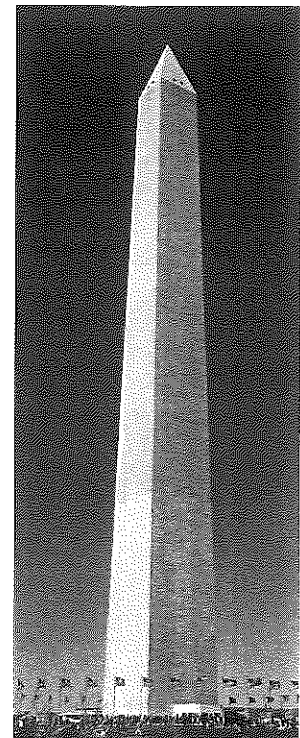
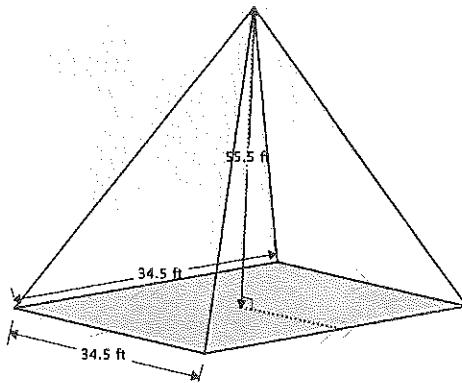
SET

Topic: Calculating the surface area and volumes of combined shapes.

Answer the following questions about the Washington Monument.

The picture at the right is of the Washington Monument in DC. The shaft of the monument is a square frustum. The bottom square measures 55 ft. on a side and the top square measures 34.5 feet. The top is a square pyramid.

9. Find the dimensions of the 4 triangular faces of the pyramid.
 (Height is 55.5 ft)



<https://flic.kr/p/axqjPQ>

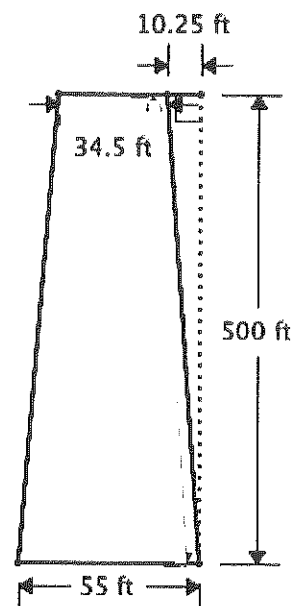
10. Find the area of each face of the pyramid.
 11. Find the area of the 4 trapezoids that make the faces of the frustum.

The area of a trapezoid: $A = \frac{b_1 + b_2}{2} h$

12. Find the total surface area of the Washington Monument.
 13. Find the total volume of the Washington Monument.

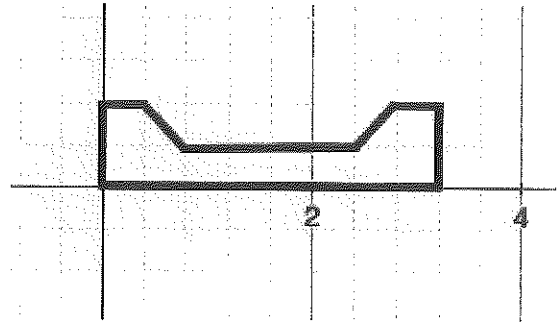
Volume of a square frustum: $V = \frac{1}{3} h(a^2 + ab + b^2)$ where a and b are the side lengths of each square.

Volume of pyramid: $V = \frac{1}{3} l^2 h$



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14. Draw a sketch of the three-dimensional object formed by rotating the figure about the x -axis.

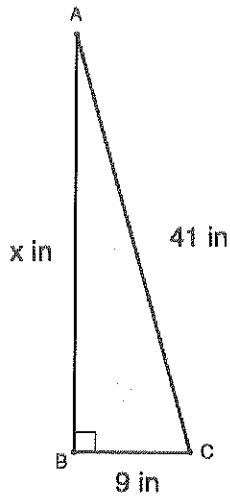


GO

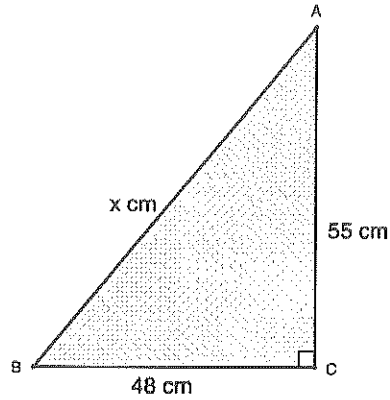
Topic: Solving for missing sides in a right triangle

Calculate the missing sides in the right triangle. Give your answers in simplified radical form.

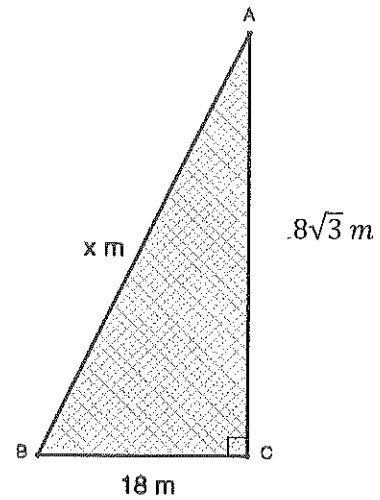
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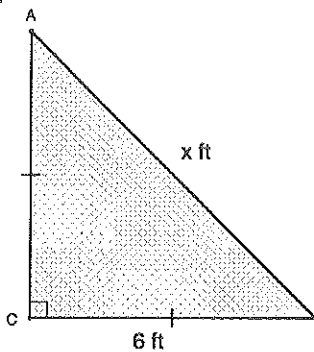
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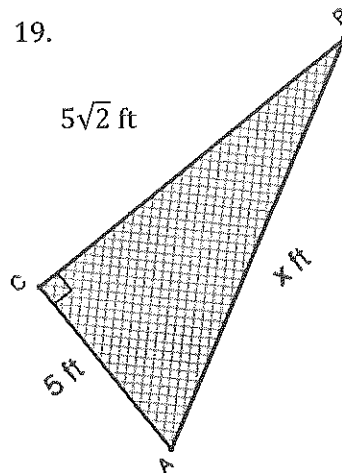
17.



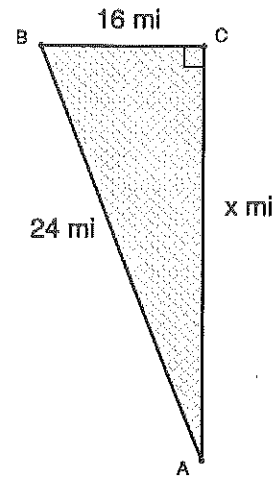
18.



19.



20.



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