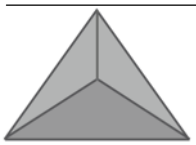
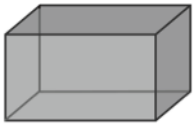
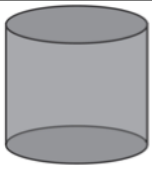
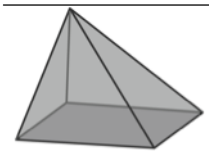
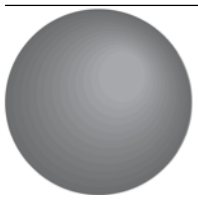
Geometry Regents Lomac 2015-2016 **Date** 3/25 **due** 4/3 **3D: Review 9.7R**

Name _____ **Per**_____

LO: I can solve problems involving 3 dimensions.

☐ **DO NOW** On the back of this packet

☐ (1) calculator **Slice and Cross section:** Draw the 2D shape that results from a cross section parallel to the base of each shape..

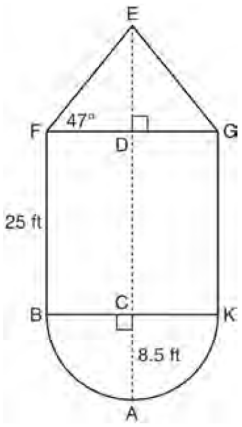
3D shape	Cross Section	Longitudinal section	2D shape to rotate
			None because:
			None because:
			None because:
			
			None because:
			None because:
			

☐ (2) calculator

3D Mathematical Modeling for industry

The water tower in the picture below is modeled by the two-dimensional figure beside it. The water tower is composed of a hemisphere, a cylinder, and a cone. Let C be the center of the hemisphere and let D be the center of the base of the cone.

Source: http://en.wikipedia.org



If $AC = 8.5$ feet, $BF = 25$ feet, and $m\angle EFD = 47°$, determine and state, to the *nearest cubic foot*, the volume of the water tower. The water tower was constructed to hold a maximum of 400,000 pounds of water. If water weighs 62.4 pounds per cubic foot, can the water tower be filled to 85% of its volume and *not* exceed the weight limit? Justify your answer.

☐ (3) calculator

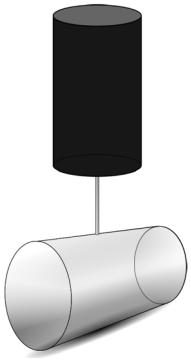
Volume

The base of a pyramid is a rectangle with a width of 6 cm and a length of 8 cm. Find, in centimeters, the height of the pyramid if the volume is 288 cm^3.

☐ (4) calculator

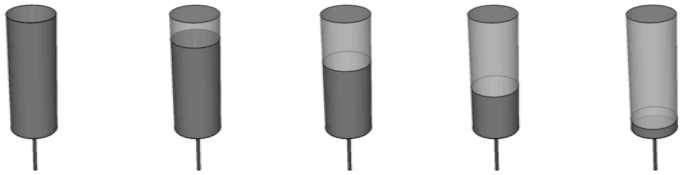
EXTRA Visualization

The water in the top container is drained into the bottom container. Below is an example of the views of the water from the top.



TOP CONTAINER:

3D View:



Top view – surface of water:

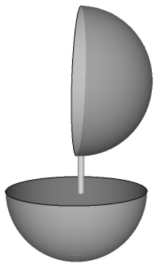
BOTTOM CONTAINER:

3D View:

Top view – surface of water:

On the next page, match the top views with the 3D figures that are emptying and filling. Where the dashed lines are, you must sketch what the top view will look like at that stage of filling/emptying. Like the example above, the top container is emptying into the bottom container.

F1



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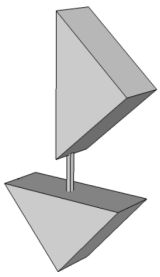

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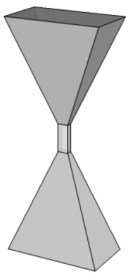

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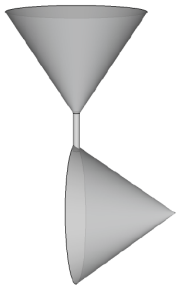

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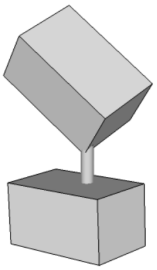

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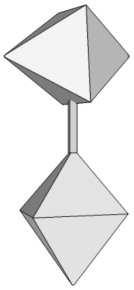
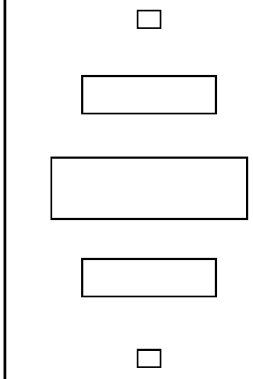
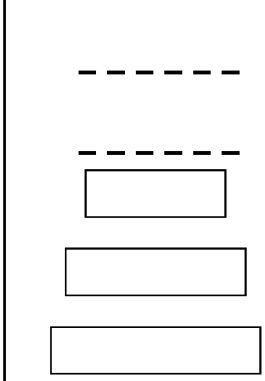


TOP VIEW TOP CONTAINER – EMPTYING

S1



S2



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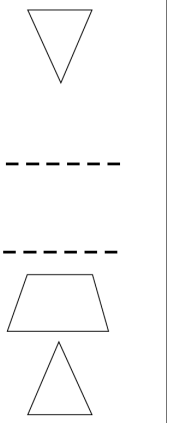

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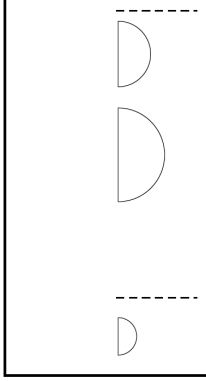

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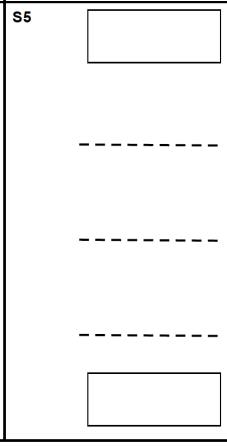

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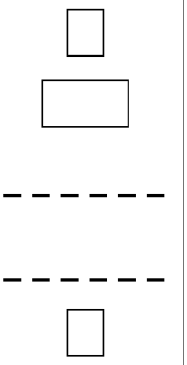
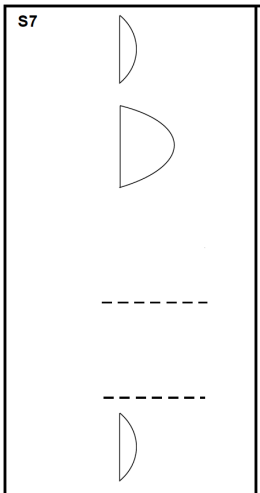


TOP VIEW BOTTOM CONTAINER – FILLING

S7



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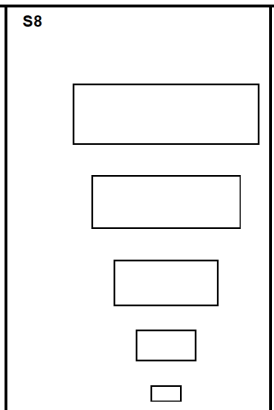

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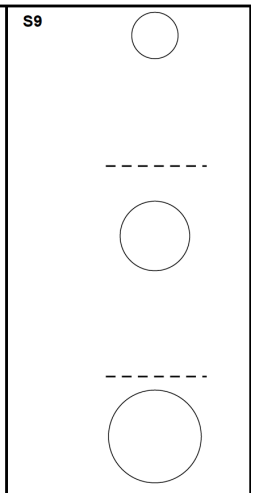

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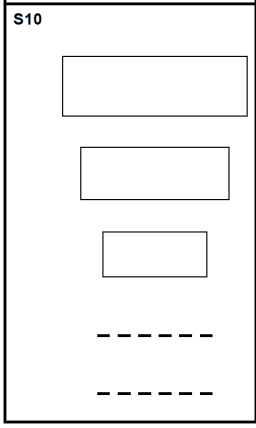

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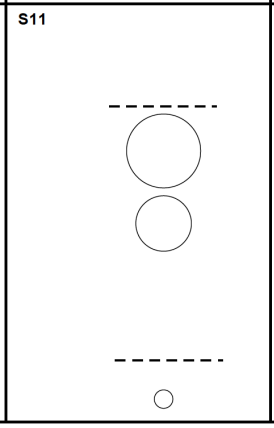
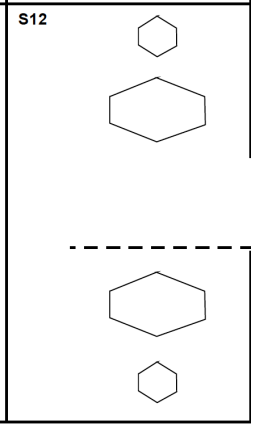
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