



Volumes of Cylinders

Standard: Estimate Volumes

Verify your estimations using exact calculations.

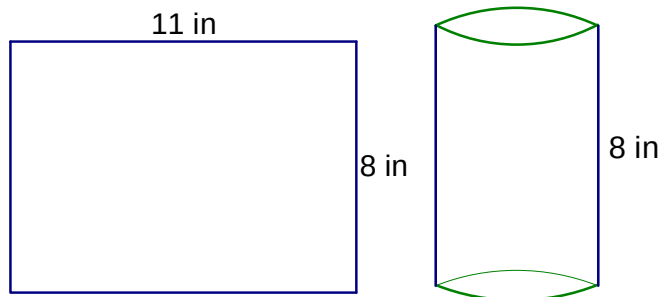
Logically communicate your reasoning.

Task:

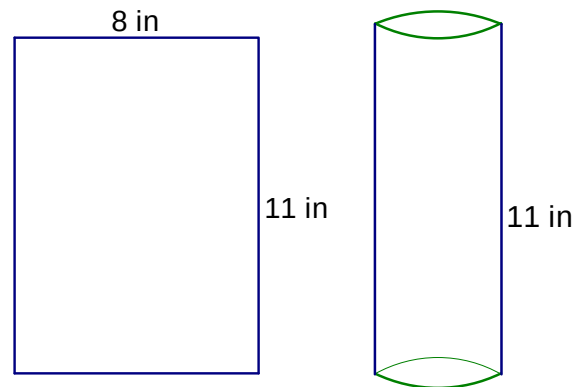
A sheet of paper is folded into a cylinder, so that the paper creates lateral area of the cylinder. The first cylinder is formed by folding the paper horizontally, and the second one is folded vertically.

1) Estimate which cylinder will have a greater volume.

Cylinder A



Cylinder B



Write a complete sentence explaining your choice.

2) To find volume of a cylinder you need to multiply the area of the base by the height of the cylinder. Write the formula of volume of cylinder

3) For each cylinder above, find the area of the base. (Remember that the length of the rectangular lateral area will go around the circular base of the cylinder. Use the steps below to guide your work)

Cylinder A

Circumference of the base _____

Radius of the base _____

Area of the base _____

Cylinder B

Circumference of the base _____

Radius of the base _____

Area of the base _____

4) Find the volume of each cylinder

Cylinder A

Cylinder B

5) Was the estimate from question 1 correct? Write a complete sentence to explain what guided your initial estimate.

6) Name the two parameters that affect volume size.

	3	2	1	0
Estimate which volume is greater			<i>The estimate is provided</i>	<i>It is not clear which volume is picked to have greater volume</i>
Provide formula for cylinder volume			<i>The formula is correct</i>	<i>The formula is not correct</i>
Find areas of circular bases (2x2)	<i>Both areas are found correctly with all the steps completed</i>	<i>Only one area is found correctly.</i>	<i>Neither area is found correctly, but some of the steps are correct</i>	<i>The areas of circular bases are not correct, none of the steps are correct</i>
Find volumes of both cylinders(x2)		<i>Both volumes are correct</i>	<i>Only one volume is correct</i>	<i>Neither volume if found correctly</i>
Provide logical explanations for your reasoning in complete sentences (2x2)	<i>Both explanations are logical and are written in complete sentences</i>	<i>Only one of the explanations is logical, or the explanations are not given in complete sentences</i>	<i>The explanations are not complete sentences and are not</i>	<i>The explanations are jumbled and confusing</i>
The correct parameters of volume are identified		<i>Both parameters are identified correctly</i>	<i>Only one of the mentioned parameters is appropriate</i>	<i>No parameters are identified correctly</i>