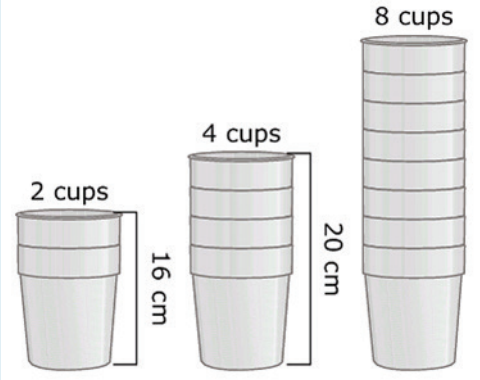


<p>Focus Standards and Claim</p>	<p>Claim 3 6.EE.B</p>
<p>Stimulus</p>	<p>Stacks of Cups</p> <p>Your science classroom uses cups for many experiments. Your teacher ordered lots of cups from a catalog. The catalog is not very good. It has the following picture, but no other useful information.</p>  <p>Your teacher wants you to help her get organized for when the cups arrive next week. Using only the information shown in the picture, she asks you to figure out some other specific measurements.</p>
<p>Item Prompt</p>	<p>The catalog is advertising a stack of these cups that is 95 cm tall. Lori says, "That must be a misprint because a stack of that height is not possible."</p> <p>Do you agree or disagree with Lori? Explain your reasoning.</p>

Scoring Guide

SCORE	2 POINTS	1 POINT	0 POINTS
	<p>Student agrees with Lori and provides a valid mathematical explanation as to why a stack of cups could not reach 95 cm. For example, students could attend to the fact that all stacks are an even number of centimeters, or that when they plug in 95 for h to solve for n, it yields a non-whole number.</p> <p>Note: There is a possible dependency on Item 3: If students did not write a correct equation in the previous item and this incorrect equation yields a whole number for n, students should be awarded full credit.</p>	<p>Student agrees with Lori, but provides a mathematical explanation that is incomplete.</p>	<p>Student disagrees with Lori, OR agrees with Lori, but does not offer any explanation for why.</p>

Sample Responses

Student Sample A



$$95 - 12 = 83 / 2 = 41.5$$

I agree with Lori, because a stack of cups 95cm tall would have to be 41 1/2 cups, which can't be.

SCORE RATIONALE

The response is based on appropriate calculations for a stack of cups that is 95 cm tall. The student started with 95, subtracted 12 (the base of a cup), and divided the result by the growth factor of 2. The explanation includes agreement with Lori and a clear statement of support that 41 1/2 cups "can't be." The response earns full credit of 2 points.

Student Sample B



I agree. If you use the previous equation the stack would be 41.5 cups which could never happen.

$$12+2n=95$$

minus 12 on both sides

$$12+2n-12=95-12 = 2n=95-12=83$$

83 divide both sides by 2

$$2n/2 = 83/2$$

$$n=41.5$$

SCORE RATIONALE

This response includes a statement of agreement with Lori and a set of mathematically reasonable equations. The algebraic steps show the process leading to the result of a partial cup value, "which could never happen." The response earns full credit of 2 points.

Student Sample C



I agree because the lip and the base are both even numbers and if you stack all the even measurements it will never be an odd number.

Or if you take the equation

$$h= 12 + (n * 2)$$

$$95 = 12 + (n * 2)$$

$$83 = n * 2$$

$$41.5 = n$$

You can't have .5 of a cup so it is impossible.

SCORE RATIONALE

The student agreed with Lori and provided a mathematically logical explanation based on reasoning about sums of even numbers. The response also includes a record of algebraic steps that lead to the result of a partial cup. The additional statement, "You can't have .5 of a cup so it is impossible," enriches this response beyond what is sufficient for the maximum of 2 points.

Student Sample D



I agree because since 1 cup is 14 cm and all the lids are 2cm the height of any stack has to be even.

SCORE RATIONALE

This response includes a statement of agreement with Lori, and evidence of effective reasoning about odd and even numbers. The explanation refers to the growth rate, along with the initial height of 1 cup. Although the implications of the fact that both values—height of 1 cup and lid height—being even could be more explicit, the response earns full credit for including a valid mathematical explanation focused on the height needing to be even.

Student Sample E



I agree with Lori if you added all the cups up you would not get 95 cm. You would get 88cm.

SCORE RATIONALE

The response includes a statement of agreement with Lori, but does not provide evidence about where the 88 cm comes from. The response earns partial credit of 1 point.

Student Sample F



Cups	Height
1	14
2	16
3	18
4	20
6	84
7	98
8	112

I agree with Lori because my table shows a constant rate and 7 cups is the closest number to 95 cm but its not because the one after which is 6 cups is 84 cm and there is no solution.

SCORE RATIONALE

The student agreed with Lori, and provided a table of values that make sense for numbers of cups 4 and fewer. The explanation has a promising beginning (“my table shows a constant rate”), and there is evidence of some correct reasoning about the incorrect values in the table. However, the values used in the explanation are not mathematically sensible, and the explanation is therefore not complete as written. The response earns partial credit of 1 point.

Student Sample G



Agree because if you start a 1 cup = 14 height then 2 cup = 16 height then 3 cup = 18 height it is not possible for you to get it.

SCORE RATIONALE

The response includes a statement of agreement with Lori, and a partially complete explanation. If the response continued on to stacks with heights of 94 cm and 96 cm, then the response would be sufficiently complete. The response earns partial credit of 1 point.

Student Sample H



I disagree because the second stack is at 20 and it went up to 95, that is not correct.

SCORE RATIONALE

The student disagreed with Lori, and the response does not include a valid mathematical explanation. The response earns 0 points.

Student Sample I

I disagree with Lori because a stack of cup can be tall, a cup by itself would maybe be a misprint. 95 cm is not tall for a stack of cups.

SCORE RATIONALE

The student disagreed with Lori, and the response does not include a mathematically justifiable reason for doing so. The response consists of conjectures, without mathematical justification, and earns 0 points.

Student Sample J

I agree with Lori because that amount of cups would be to heavy and fall over.

SCORE RATIONALE

The student agreed with Lori, but did not provide a mathematical reason to justify the conclusion. The response earns 0 points.

Student Sample K

It is possible there if you subtract the big part which is 8 then you divide 87 by 4 and each cup is 21.75cm.

SCORE RATIONALE

The response includes implicit disagreement with Lori, and an explanation that is not contextually logical. This response earns 0 points.