

Grade 5: Volume Units

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5.MD.C.3 - Recognize volume as an attribute of solid figures and understand concepts of volume measurement.

One equation is true and one equation is false. Write “true” and “false” in the boxes to show which is which.

$$1,728 \text{ cubic inches} = 1 \text{ cubic foot}$$

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Solution

A cubic foot is a unit of volume. It is a cube that measures 1 foot on each side.

A cubic inch is also a unit of volume. It is a cube that measures 1 inch on each side.

A cubic foot is larger than a cubic inch. There can't possibly be 1,728 cubic feet in only 1 cubic inch. So the second statement is false.

We are told that one equation is true and one is false, so we have to conclude that the first statement is true.

Note: a student could verify that 1 cubic foot = 1,728 cubic inches by calculating the product $12 \times 12 \times 12$ and getting the answer 1,728. However, no calculation is required to answer this question.

If the student answers the question incorrectly, ask how they thought about it to make sure it wasn't a careless mistake.

If the student doesn't have a clear mental picture of what a cubic inch looks like, you could show them an object shaped like a cube with sides measuring about 1 inch.

If the student doesn't have a clear mental picture of what a cubic foot looks like, you could show them an object shaped like a cube with sides measuring 1 foot.

Elaboration on Alignment

This is intended to be an easy problem about fundamental volume concepts. The use of the numbers 1 and 1,728 makes the problem easier than if the numbers had been, say, 3 and 5,184.

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Name: _____

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