



The University of Georgia

Mathematics Education Program

J. Wilson, EMAT 6600

Cubic Foot

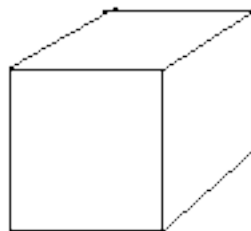
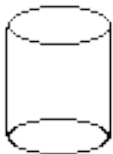
By Leighton McIntyre

Goal: To convert gallons to cubic feet

Problem

The water bills in Athens indicate your water consumption and charges in terms of cubic feet of water.

Compare a gallon container, such as a paint can, and a box or stick structure 12 inches on a side. Visually. Estimate or guess how many gallon in a cubic foot. Have students estimate from the visual comparison.



How many gallons in a cubic foot?

How many cubic inches in a gallon?

How many cubic feet of gasoline in a Celica tank with a capacity of 17 gallons?

If you take a gallon container and compare it to a cubic foot box, the estimate that you can make is that there are about 7 gallons in a cubic foot.

Looking at a sample water bill from Athens Clarke County should enable you to make just about the same estimation.

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From Date	To Date	Previous Reading (cubic feet)	Current Reading (cubic feet)	Service	Usage (X 1000 gallons)	Unit Charge	Usage Charge	Sub-Totals
04/24/2010	05/29/2010	35817	36753	Water Total Usage	7.00			\$35.54
				Tier 1	4.66	X \$3.85	\$17.94	
					0.46	X \$4.81	\$2.21	

How many gallons in a cubic foot?

Using the sample water bill above we can see that the usage was $36753 - 35817 = 936$ cubic ft of water. On the same bill this is equivalent to usage of 7000 gallons of water. Using this information we can calculate that there are $7000/936 = 7.48$ gallons in a cubic foot.

How many cubic inches in a gallon?

There are 12 inches in one foot. This in one cubic foot there are $12 * 12 * 12 = 1728$ cubic inches.

Recall 1 cubic foot = 7.48 gallons

Thus there are $1728/7.48 = 231$ cubic inches in one gallon

How many cubic feet of gasoline in a Celica tank with a capacity of 17 gallons?

Since there are 7.48 gallons in a cubic foot

Then 17 gallons have $17/7.48 = 2.28$ cubic feet.
