## Problem ID: 12

## Problem Name: Barrel, Barrel, Barrel

## Description: The Big British Brass Barrel Consortium (BBBBC) has a lot of barrels (made of brass). Every day they receive a large set of orders from other companies for their barrelling needs. Each company will send them a list of different fluids that they have, for which they need barrels to transport the fluids. The various amounts of fluids will be specified in terms of their volume in cubic metres. The BBBBC have a large stock of barrels and they store the height and diameter of their barrels in a database. Every day they need to work out if they have enough barrels in stock to fulfil the orders. If they don’t then they need to compile a list of the number and capacity of barrels that they’ll need to borrow from their competitors. Propose a solution to solve this problem.

## UB Number: 14031264

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The Big British Brass Barrel Consortium Company has many barrels and they provide barrels to other companies according to their requirement. I make BBBBC method and give it initial value and it also do some conversions. I assume that they have 100 barrels in their stock. Similarly, when companies send the list of fluids that we get input from company in main method and give to BBBBC as an argument. After that, I check the possibilities of BBBBC own stock according to the company’s necessity. So when the company send the order of the fluids then we pass this order as an argument to BBBBC method. Then they specified the order in the form of volume in cubic meters. According to website1, **1m3**=**219.969 gallons,** and **1 barrel** =**36 imperial gallons capacity**. I make conversions and check all possibilities of barrels in stock, and return result to main method.  
Likewise, the BBBBC convert this order into required barrels as in this way they can check their stock that how much they keep barrels in their stock with suitable capacity. When the BBBBC have enough barrels then they work out to compensate demand of the company. If the company require barrel with different capacity then I get input from main of **height,** **upper and lower radius** from main method. In this way, I can find suitable barrel. It has two different radius one at top and bottom and other at the middle. The formula used to calculate volume of the barrels is,   
**Formula**   
**Barrel Volume = (1/12) π h (2 D2 + d2)**  
In the meanwhile, when the BBBBC method check their own stock. If the demand of company is equal or less than the stock then the BBBBC will provide the barrels to the company. If the company need more than the BBBC stock barrels, than BBBBC will arrange a list of barrels and capacity of different barrels and purchase from their contestants.

**Referance:**

[http://www.metric-conversions.](http://www.metric-conversions.org/volume/cubic-meters-to-uk-gallons.htm)

http://www.unit-conversion.info/volume.html

[http://www.onlineconversion.](http://www.onlineconversion.com/object_volume_barrel.htm)

http://www.metric-conversions.org/metric-conversion-table.htm

http://www.had2know.com/academics/barrel-volume-equation-calculator.html