

Assignment: class TrashCan

The TrashCan class, which you will write, represents a trash can.

TrashCan objects are created by calls to a constructor with a double parameter that represents the trash can's capacity, which is the maximum weight, in pounds, that a TrashCan object can hold. Assume that this value will be greater than or equal to 0. When a TrashCan object is constructed, it is initially empty and its contents have a weight of 0 pounds.

The TrashCan class contains an acceptTrash method, which has a double parameter that represents the weight, in pounds of the trash that will be deposited into the trash can. The amount to be deposited will always be greater than 0 and less than the capacity of the can. If there is already trash in the trash can, the amount to be deposited, combined with the existing trash, may reach or exceed the can's capacity. In this case, the trash can will be filled to its capacity and then emptied before the remaining trash is accepted. The trash can should always be emptied when the weight of the trash in the can reaches the can's capacity. The acceptTrash method returns a double that represents the number of pounds of trash that can still be added to the trash can before it is completely filled.

The following table contains a sample code execution sequence and the corresponding results. The code execution sequence appears in a class other than TrashCan.

Statement	Return Value	Explanation
<code>double remaining;</code>		
<code>TrashCan kitchen = new TrashCan(10.0);</code>		TrashCan object named <code>kitchen</code> with a capacity of 10 pounds of trash. Initially there are 0 pounds of trash in the trash can.
<code>remaining = kitchen.acceptTrash(2.5);</code>	7.5	<code>kitchen</code> now holds 2.5 pounds of trash and can take 7.5 more pounds before it needs to be emptied.
<code>remaining = kitchen.acceptTrash(3.5);</code>	4.0	<code>kitchen</code> now holds 6 pounds of trash and can take 4 more pounds before it needs to be emptied.
<code>remaining = kitchen.acceptTrash(6.0);</code>	8.0	<code>kitchen</code> accepts 4 pounds of trash, reaching the 10-pound capacity, and is then emptied. The remaining 2 pounds of trash are then accepted. <code>kitchen</code> now holds 2 pounds of trash and can take 8 more pounds before it needs to be emptied.
<code>TrashCan bedroom = new TrashCan(3.0);</code>		TrashCan object named <code>bedroom</code> with a capacity of 3 pounds of trash. Initially there are 0 pounds of trash in the trash can.
<code>remaining = bedroom.acceptTrash(1.0);</code>	2.0	<code>bathroom</code> now holds 1 pound of trash and can take 2 more pounds before it needs to be emptied.
<code>remaining = bedroom.acceptTrash(3.2);</code>	1.8	<code>bathroom</code> accepts 2 pounds of trash to reach the 3-pound capacity and then it is emptied. The remaining 1.2 pounds are then accepted. <code>bedroom</code> now holds 1.2 pounds of trash and can take 1.8 more pounds before it needs to be emptied.

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Write the complete TrashCan class in the space below. **(total points: 7)**