

Name _____ Period _____

1. This question involves the implementation of a class, called `DixieCup`, which models a dixie cup. A `DixieCup` object can be created with or without a parameter. A `DixieCup` object created with a parameter can hold the number of items specified by the parameter. A `DixieCup` object created without a parameter cannot hold any items.

- `addItem`, adds an item to a cup that is not full
- `getIsFull`, returns whether or not the cup is full
- `getNumItems`, returns the number of items in the cup
- `swapItems`, swaps the items at the specified locations
- `toString`, returns a summary of the cup

Statements and Expressions	Value Returned (blank if no value)	Comment
<code>DixieCup cup1 = new DixieCup();</code>		Creates a cup that cannot hold any items
<code>DixieCup cup2 = new DixieCup(5);</code>		Creates a cup that can hold up to 5 items
<code>cup1.addItem("marble");</code>		Nothing is added to cup1
<code>cup2.addItem("marble");</code>		A marble is added to cup2 and the contents are defined as follows, {marble, null, null, null, null}
<code>cup2.getNumItems();</code>	1	There is 1 item in cup2
<code>cup1.getIsFull();</code>	true	Returns true because cup1 cannot hold any items
<code>cup2.getIsFull();</code>	false	Returns false because cup2 can hold more items
<code>cup2.addItem("marshmallow");</code>		A marshmallow is added to cup2 and the contents are defined as follows, {marble, marshmallow, null, null, null}
<code>cup1.getNumItems();</code>	0	There are not any items in cup1
<code>cup2.getNumItems();</code>	2	There 2 items in cup2
<code>cup1.swapItems(0, 1);</code>		Nothing is swapped in cup1
<code>cup2.swapItems(1, 2);</code>		Swaps the items at locations 1 and 2. The contents in cup2 are defined as follows, {marble, null, marshmallow, null, null}
<code>System.out.println(cup2.toString());</code>	marble null marshmallow null null the cup is not full	Returns a summary of the cup

Write the complete `DixieCup` class, including the constructors and any required instance variables and methods. Your implementation must meet all specifications and conform to the example.

/12

Score _____/12