**UHS AP Calculus AB | Area/ Volume Project**

Choose a past AP free-response area/volume question. You may select from these questions:[[1]](#footnote-1)

|  |  |  |  |
| --- | --- | --- | --- |
| 2014 #2 | 2013 #5 | 2012 #2 | 2011 #3 |
| 2011 (Form B) #3 | 2010 #4 | 2010 (Form B) #1 | 2009 #4 |
| 2009 (Form B) #4 | 2008 #1 | 2008 (Form B) #1 | 2007 #1 |

Each question has more than one part (i.e., parts a, b, c, etc.).

1. Choose one of the volume parts and create a 3D model of this question, using common household supplies, office supplies, or any other non-perishable medium of your choosing. Total cost of the project may not exceed $10.
2. Complete the back side of this sheet (keep this paper nice, please):
   1. Find the area of the given region.
   2. Write a reflection on your project.
   3. Present your project to an adult, explaining the math that was needed in order to build your model. Adult should give a short write-up and include her/his signature.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Poor: 0-3** | **Fair: 4-6** | **Good: 7-8** | **Excellent: 9-10** | **Earned** |
| Area Problem | Showed no (or minimal) effort | Attempted the problem but had several errors | Attempted the problem with no more than 3 errors | Calculated the correct area, with a possible error in notation |  |
| Volume—Accuracy  {axes **must** be labeled or a scale factor **must** be given on the model} | No labels; no scale factor | Labels or scale factor included, but do not match the given problem; function given | Labels or scale factor included and mostly accurate; function given | Labels or scale factor included and accurate; function and interval given |  |
| Volume—Neatness | Looks like it was put together during lunch | Somewhat thought-out, but mostly thrown together | Mostly thought-out | Thoroughly thought out; much attention has been given to detail |  |
| Volume—  Reflection | No reflection | 2-sentence reflection | 4-sentence reflection | Thorough reflection; student clearly learned something s/he didn’t know before |  |
| Volume—  Parent/Friend/ Teacher Reflection | No reflection | 1-sentence reflection | 2-sentence reflection | Thorough reflection; adult clearly learned something s/he didn’t know before |  |
| **Total (out of 50)** | | | | |  |

**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ AP Exam Year and Question \_\_\_\_\_\_\_\_\_\_\_\_**

**Area Problem** (be mindful if this was a calculator or non-calculator question)

**Your Reflection**  
Some questions you may want to consider:

* What was the most rewarding part of this project?
* What was the most frustrating part of this project?
* What did not go as anticipated?
* What grade would you give yourself?
* What did you learn?

**Adult Write-Up** (please have adult sign)

1. To find past exams:

   Google “AP Exam Information” and click on the first link

   Click *AP Calculus AB* under Mathematics and Computer Science

   Voila [↑](#footnote-ref-1)