**CPP Problem Design**

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| **Subject: Compute Sphere Volume** |
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| **Main testing concept: Basic Computing**   |  |  | | --- | --- | | **Basics** | **Functions** | | ■ C++ BASICS  □ FLOW OF CONTROL  □ FUNCTION BASICS  □ PARAMETERS AND OVERLOADING  □ ARRAYS  □ STRUCTURES AND CLASSES  □ CONSTRUCTORS AND OTHER TOOLS  □ OPERATOR OVERLOADING, FRIENDS,AND REFERENCES  □ STRINGS  □ POINTERS AND DYNAMIC ARRAYS | □ SEPARATE COMPILATION AND NAMESPACES  □ STREAMS AND FILE I/O  □ RECURSION  □ INHERITANCE  □ POLYMORPHISM AND VIRTUAL FUNCTIONS  □ TEMPLATES  □ LINKED DATA STRUCTURES  □ EXCEPTION HANDLING  □ STANDARD TEMPLATE LIBRARY  □ PATTERNS AND UML | |
| **Description:**  Given a radius r, please compute and output the volume of a sphere with radius  r.  PI = 3.14159265358979323846  **Input:**  Input radius r(float).The program continues to request input, and ends if EOF is read.  **Output:**  Output the volume of a sphere, and take the decimal point to the sixth  place.  **Sample Input / Output：**   |  |  | | --- | --- | | Sample Input | Sample Output | | 47.0  21.682 | 434892.765432  42695.944922 | |
| **■ Eazy,Only basic programming syntax and structure are required.**  **□ Medium,Multiple programming grammars and structures are required.**  **□ Hard,Need to use multiple program structures or complex data types.** |
| **Expected solving time:**  10 minutes |
| **Other notes:**  %.6f |