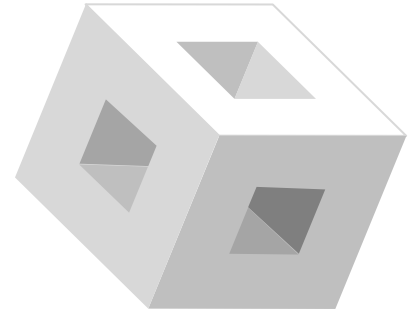


# *Can You Solve This Math Problem?*

A solid cube has side length 5 inches. A 2-inch by 2 inch hole is cut into the center of each face. The edges of each cut are parallel to the edges of the cube, and each hole goes all the way through the cube. What is the volume, in cubic inches, of the remaining solid?



If you know the answer, then get ready for

## *The 10<sup>th</sup> Colonial Mathematics Challenge*

Sponsored by

Community College of Philadelphia's Office of Admissions & Mathematics Department

Date: Thursday, May 12, 2011

9:00 a.m.-2:15 p.m.

Winnet Student Life Building –Great Hall

17<sup>th</sup> and Spring Garden Streets

Philadelphia, PA 19130

*High School juniors and seniors from throughout Philadelphia will compete in individual and team math competitions*

- ✓ **Knowledge of Algebra II required**
- ✓ **Knowledge of Elementary Geometry Recommended**
- ✓ **Calculators will be permitted**
- ✓ **Lunch will be provided to all students and instructors**

The answer to the question, plus additional training materials, can be found at:

<http://faculty.ccp.edu/dept/math/competitions.html>

*Get Ready For The Challenge!*

**Solution:** The volume of the solid cube is  $125 \text{ in}^3$ . The first hole to be cut (through two faces) removes  $2 \times 2 \times 5 = 20 \text{ in}^3$ . The holes on the other four faces each remove  $2 \times 2 \times 1\frac{1}{2} = 6 \text{ in}^3$ . So the volume of the remaining solid is  $125 - 20 - 4 \times 6 = 81 \text{ in}^3$ .