

## Eighth Problem of the Week, due Thursday 11/02

Let  $x, y, z$  be positive real numbers such that  $x^2 + y^2 + z^2 = 1$ . Show that

$$x^2yz + xy^2z + xyz^2 \leq \frac{1}{3}$$

**Hint:** The inequality of arithmetic and geometric means, AM-GM Inequality, might be helpful.