The problem requires you to balance the moments around the toe of the dam to determine the maximum height of water that the dam can withstand without tipping. As with many such problems, the challenge isn't really in the general concept, but rather in the details of determining the various forces and locations of their action. To help you through that process, I am providing a diagram that identifies all the relevant forces and defines some important geometric parameters. You should be able to determine the values for all relevant parameters without too much difficulty, based on material in the textbook and that will be covered in class.

The most challenging parameter to evaluate is y_3. The value of this parameter can be determined by writing the moment $F_3 y_3$ as the sum of two simpler moments: one associated with the part of the upward force that is constant across the bottom of the dam (equal to the force at the toe), and the other associated with the part of the upward force that exceeds the value at the toe (*i.e.*, a second force equal to zero at the toe and grows steadily with distance toward the high-water side of the dam).