A Puzzle on a Glass of Water

Suppose you pour a volume V of water into a cylindrical glass of radius r and height h, of negligible thickness, so that $V \leq \pi r^2 h$. On a level table, tilt the glass leftwards, so that the water is just about to flow out. Let θ be the angle of tilt, i.e., that between the bottom of the glass and the table surface. How are V and θ related?

More specifically, assume $h = 4$ cm and $r = 1$ cm. What is θ to the nearest degree for the glass to be filled to 1/3, 1/2, and 3/4 of its total capacity?

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