Turkey Junior National Olympiad 2008

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1	Let ABC be a right triangle with $m(\widehat{C}) = 90^\circ$, and D be its incenter. Let N be the intersection of the line AD and the side CB. If $\|CA\| + \|AD\| = \|CB\|$, and $\|CN\| = 2$, then what is $\|NB\|$?
2	Find all solutions of the equation $4^x + 3^y = z^2$ in positive integers.
3	There are 24 cups on a table. In the beginning, only three of them placed upside-down. At each step, we are turning four cups. Can we turn all the cups right-side up in at most 100 steps?