Flanders Math Olympiad 2010

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by parmenides51

1	How many zeros does $101^{100} - 1$ end with?
2	A parallelogram with an angle of 60^o has a as the longest side and a shortest side b. Let's take the perpendiculars down from the vertices of the obtuse angles to the longest diagonal, then it is divided into three equal parts. Determine the ratio $\frac{a}{b}$.
3	In a triangle ABC, $\angle B = 2\angle A \neq 90^o$. The inner bisector of B intersects the perpendicular bisector of $[AC]$ at a point D. Prove that $AB \parallel CD$.
4	In snack bar Pita Goras, the owner checks his accounts. He writes on every line either a positive amount in case of an income or a negative amount in case of an expense. He says to his accountant, "If I change the amounts of random 5 adding consecutive lines, I always get a strictly positive result." "Indeed," the accountant answers him, "but if you put the sums of 7 consecutive lines add up, you always get a strictly negative result." How many lines are there maximum on his sheet?