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The deflection of the flat arch truss with a triangular lattice depending on the number of panels

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Analytical calculation of the arched trusses by means of Maple is done in [1-3]. The basis in these works is taken the algorithm of [4]. The algorithm based on the method of induction, is well established in the calculation as flat [5-7] and spatial [8-10] structures. In the present work searched for a dependence of a deflection of the truss (Fig. 1) under the action of concentrated forces at Midspan. The truss contains in the General case n panels in half span. The structure of the farm suggests that this number is even $n = 2n_0$. Effort calculated by method of cutting of knots, the deflection by the formula of Maxwell – Mohr. Consistent calculation of trusses with panels number $n_0 = 1, 2, 3, \dots$ allowed to reveal the regularity of formation of the coefficients. By induction with the use of operators `rgf_findrecur` and `rsolve` the following General formula

$$EF \Delta = P(A_n a^3 + B_n b^3 + C_n c^3) / b^2,$$

where $A_n = n_0(2n_0 + 1)$, $B_n = n_0$, $C_n = n_0(2n_0^2 + 1) / 3$, $c = \sqrt{a^2 + b^2}$. Note that the same result can be obtained applying the device site Wolframalpha.com. Analysis of the obtained relationships did not reveal any extreme features (Fig.2, $L = 2an_0 = 30m$, $H = b(n_0 + 1)$). In the beginning of the chart is observed a weak minimum.

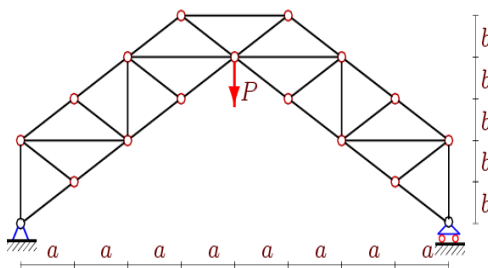


Fig. 1. Truss ($n = 4, n_0 = 2$)

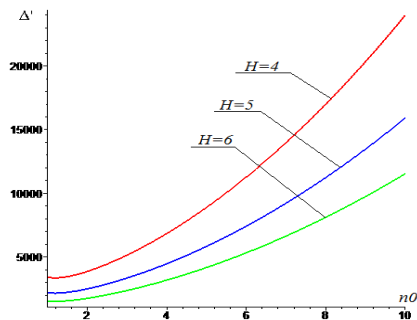


Fig. 2. The dependence deflection- number of panels

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Development of Dialogue Speech Skills (using materials from fiction)

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The modern methodology of teaching English puts speaking in dialogues on the first place for developing speaking skills. These skills can be trained with various teaching aids, including texts of fiction. Such dialogues give an opportunity to avoid traditional rendering of the texts and turn them into living English speech. More than that, all the vocabulary is remembered much better. As an example of this, let's consider a dialogue in the story of Mark Twain's "A Dog and Three Dollars". The story consists of funny things related to the dog. At the beginning of General Miles, and in the end he buys it from the General again. So, let's give the dialogue of the author the story and General Miles.

General Miles (GM): What a beautiful dog! Is it your dog?

No answer...

GM : Do you want to sell it?

Author (A): Three dollars.

GM: Three dollars? But that is very little .I can give you fifty dollars for it.

A: No ,no. I only want three dollars.

GM: Well, it is your dog .If you want three dollars for it I shall be glad to buy your dog.

Later the boy goes to take this dog from General Miles.

A: I came here to take the dog back.

GM: But it is not your dog now. I have bought it. I have paid you three dollars for it.

A: I shall give you back your three dollars, but I must take the dog back.

GM: But you have sold it to me, it is my dog now.

A: I could not sell it to you, sir, because it was not my dog.