

HELICAL DEVIATION

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In frenet-serret tetrad the curves with constant curvatures are called helices. There are four types of helices which are helix-1, helix-2, helix-3 and helix-4 for the first type, all the curvatures are zero. For the second type, first curvature is non zero and the other curvatures are zero. For the third type, first and second curvatures are non zero and the third curvature is zero, for the fourth type, all the curvatures are non zero. We have enough examples for all the four types. Considering two neighbouring curves, deviation equations are introduced for all four types. When the deviation vector is taken as (W, X, Y, Z) , there are three second order equations for the first type while solving, there will be six constants. They are meaningful and the reason is given for the second type, there are three third order equations which will have 9 constants. The full explanation is given why there should be 9 constants for this type. Then for the third type, we have one third order equation and two fourth order equations which give 11 constants. The reason is explained why there should be 11 constants.

For the fourth type, we have one third order equation, one fourth order equation and one fifth order equation which give 12 constants and the reason is also explained why there must be 12 constants. Then we give two examples for each type. These examples seem to be very interesting and they give very good results.