Summary of ideas

General

GeoGebra is already a formidable tool with a wide area of application. As a teacher educator I realized its potential nearly at first sight. Since then great developments have taken place, and it is still making progress at an amazing rate. The previous software packages, graph-plotter and dynamic geometry system, were replaced by *GeoGebra* in the courses I gave at the teacher training institution and courses offered to teachers in upper and lower secondary schools,. The combination of algebra and geometry in one system soon proved to be valuable. I now look forward to see the addition of a computer algebra system in the same package.

Areas of application

Problemsolving has a high priority in mathematics teaching in Norwegian schools. This activity is facilitated and enhanced by using *GeoGebra*. Students can experiment and explore, search for common elements, make conjectures which they afterwards may try to verify. One example where *GeoGebra* can be a great help, is in looking for and investigating loci. A locus for points having equal distances from a point and from a straight line is well known, but what if the locus of points were having equal distances from a straight line and a circle. In fact it could be a of interest to study all the combinations of point, line and circle: Point/point, point/line, point/circle, line/line, line/circle, circle/circle. Some of these are well known like point/point giving the well known perpendicular bisector and some are trivial like line/line resulting in angle bisector for intersecting lines and a new parallel line if the original lines are parallel. Anyway, students in secondary school find investigations of this sort interesting, they get acquainted with ordinary mathematical working methods, and hopefully they will acquire new mathematical knowledge.

Extensions of *GeoGebra*

I look forward to the inclusion of the two new mathematical fields which have been mentioned: Computer algebra system and 3D-geometry. *GeoGebra* will then cover nearly all our needs of IT-assistance in the teaching and learning of mathematics in secondary schools.

Wanted

Finally a wish: I would have liked being able to enter functions without using functional parentheses so that $\sin(x)$ and $\ln(x)$ could be written as sinx and lnx as implemented in for example the CAS *Derive 6*.

I would have liked being able to write both *abs(x), |x|* for the absolute value of x.

Jostein Våge, Mathematics education, NTNU, Trondheim, Norway.