The Theorem of Desargues

(See §8.6 of the text for the statement of the theorem.)

In the figure below:

The lines joining corresponding vertices of triangles ***ABC*** and ***A′B′C′*** are concurrent at ***O***.

And then the intersections of corresponding sides:

AB and ***A′B′*** (meeting at ***P***)
AC and ***A′C′*** (meeting at ***Q***)
BC and ***B′C′*** (meeting at ***R***)

are collinear, as predicted by the Theorem of Desargues.

(The line ℓ joins the intersection points of corresponding sides.)

Note: Strictly speaking, Desargues' theorem is a statement about projective lines. Thus, in an affine situation some pairs of corresponding sides could be parallel, or the three lines joining corresponding vertices could be parallel. This would correspond to a projective situation where some of the intersection points were ideal points. That kind of situation was carefully avoided, of course, in drawing this figure.