Duality with Projective Geometry

Two quadrangles perspective to a point (P)
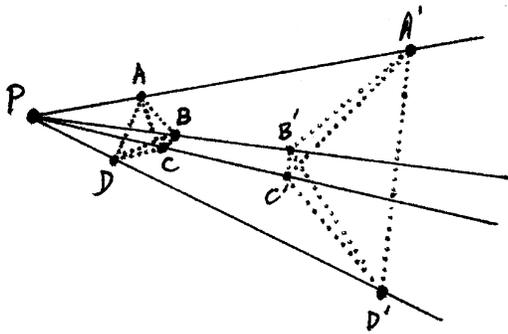
Two quadrilaterals perspective to a line (p)
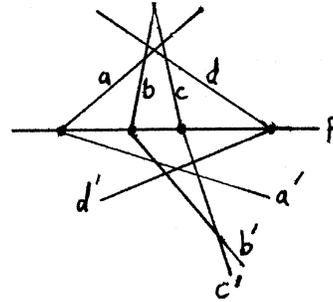
Theorem of Pappus
If the vertices of an ordered hexagon (A, B', C, A', B, C') lie alternately on two lines, then the three pairs of opposite sides meet in collinear points (on ℓ).
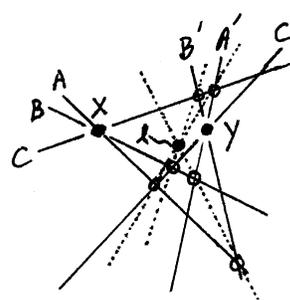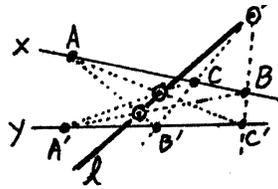
Dual of Pappus
If the sides of an ordered hexagon (A, B', C, A', B, C') pass alternately through two points, then the three pairs of opposite vertices are joined to formed concurrent lines (at ℓ).

Theorem of Pascal
If the vertices of an ordered hexagon (A, B', C, A', B, C') lie on a conic, then the three pairs of opposite sides meet in collinear points (on ℓ).
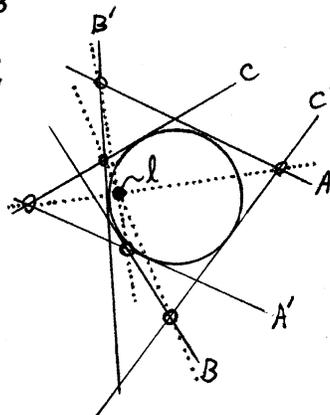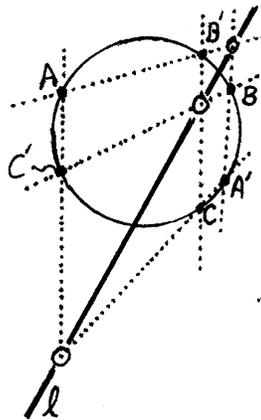
Theorem of Brianchon (Dual of Pascal)
If the sides of an ordered hexagon (A, B', C, A', B, C') fall on a conic, then the three pairs of opposite vertices are joined to formed concurrent lines (at ℓ).

Theorem of Desargues
If two triangles are perspective from a point (P), then they are also perspective from a line (p).
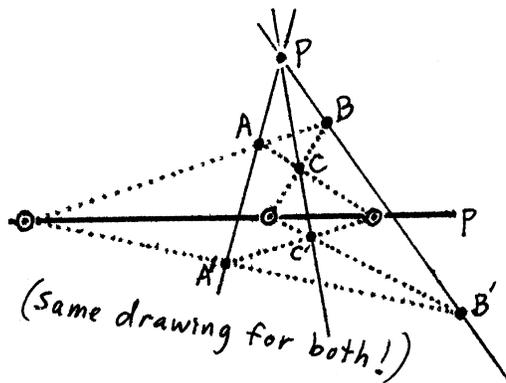
Dual of Desargues
If two triangles are perspective from a line (p), then they are also perspective from a point (P).

(Same drawing for both!)