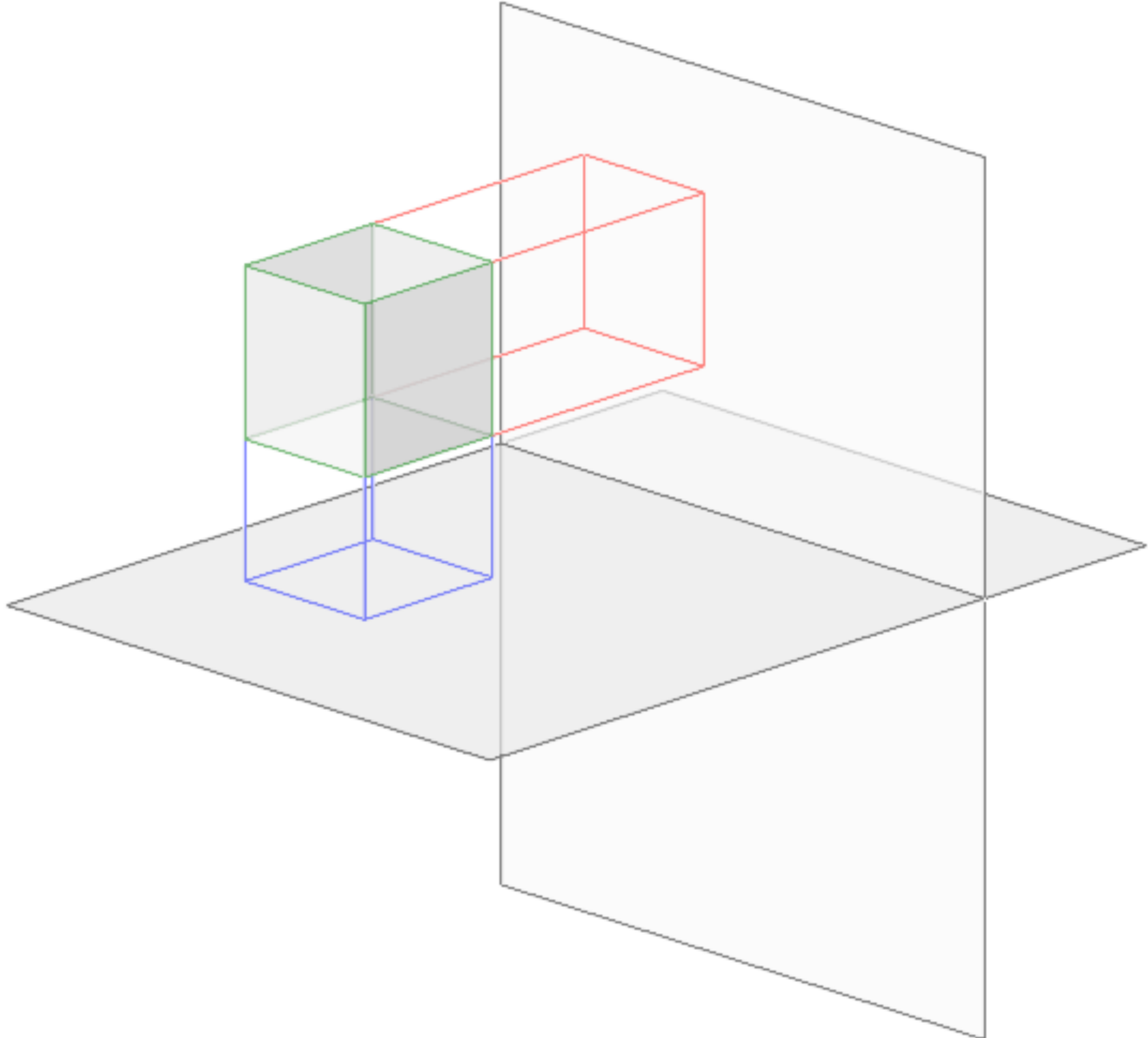


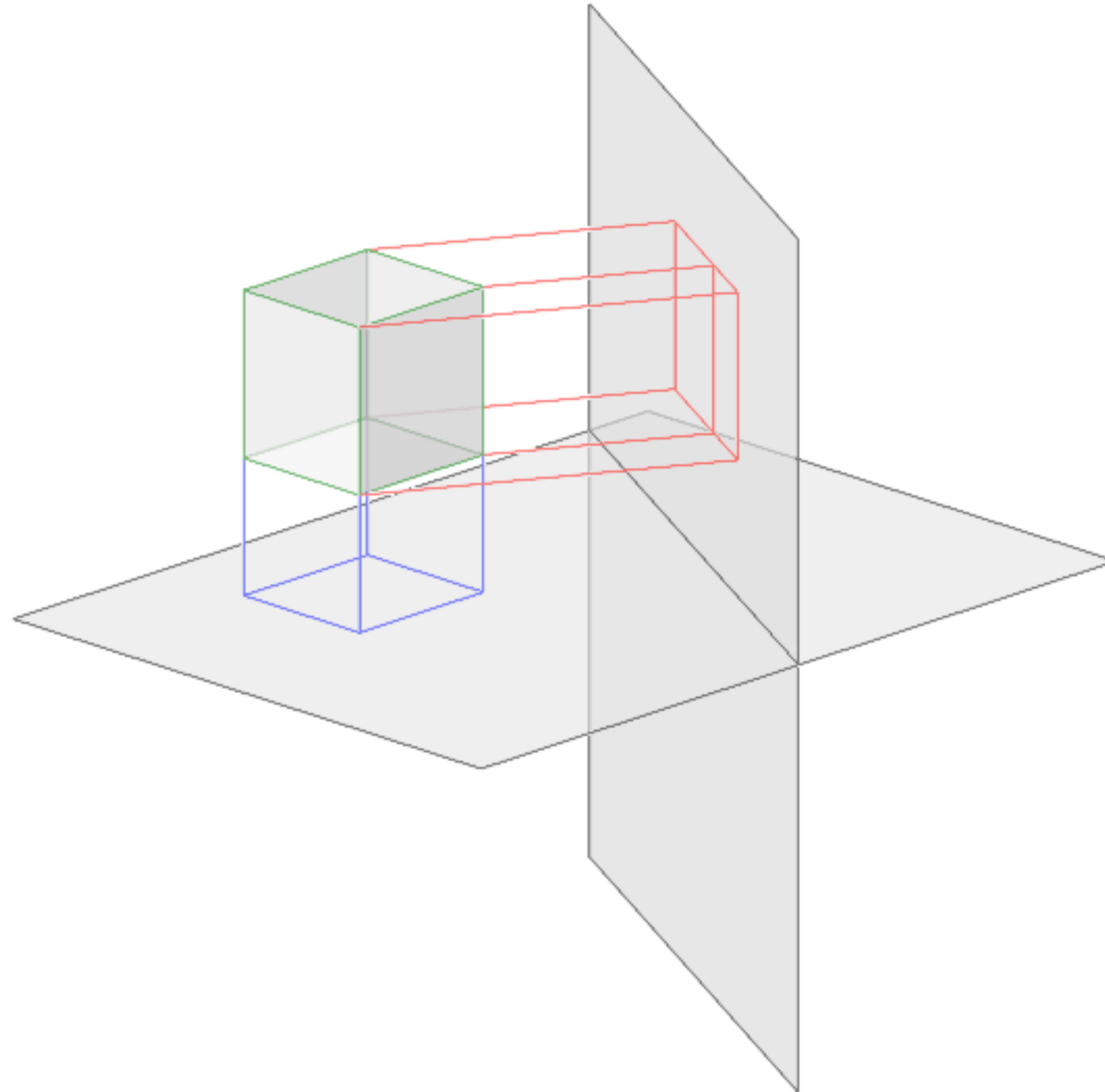
Descriptive Geometry and Projection

PARALLEL ORTHOGRAPHIC PROJECTION WITH PLANES OF PROJECTION NORMAL TO OBJECT EDGES



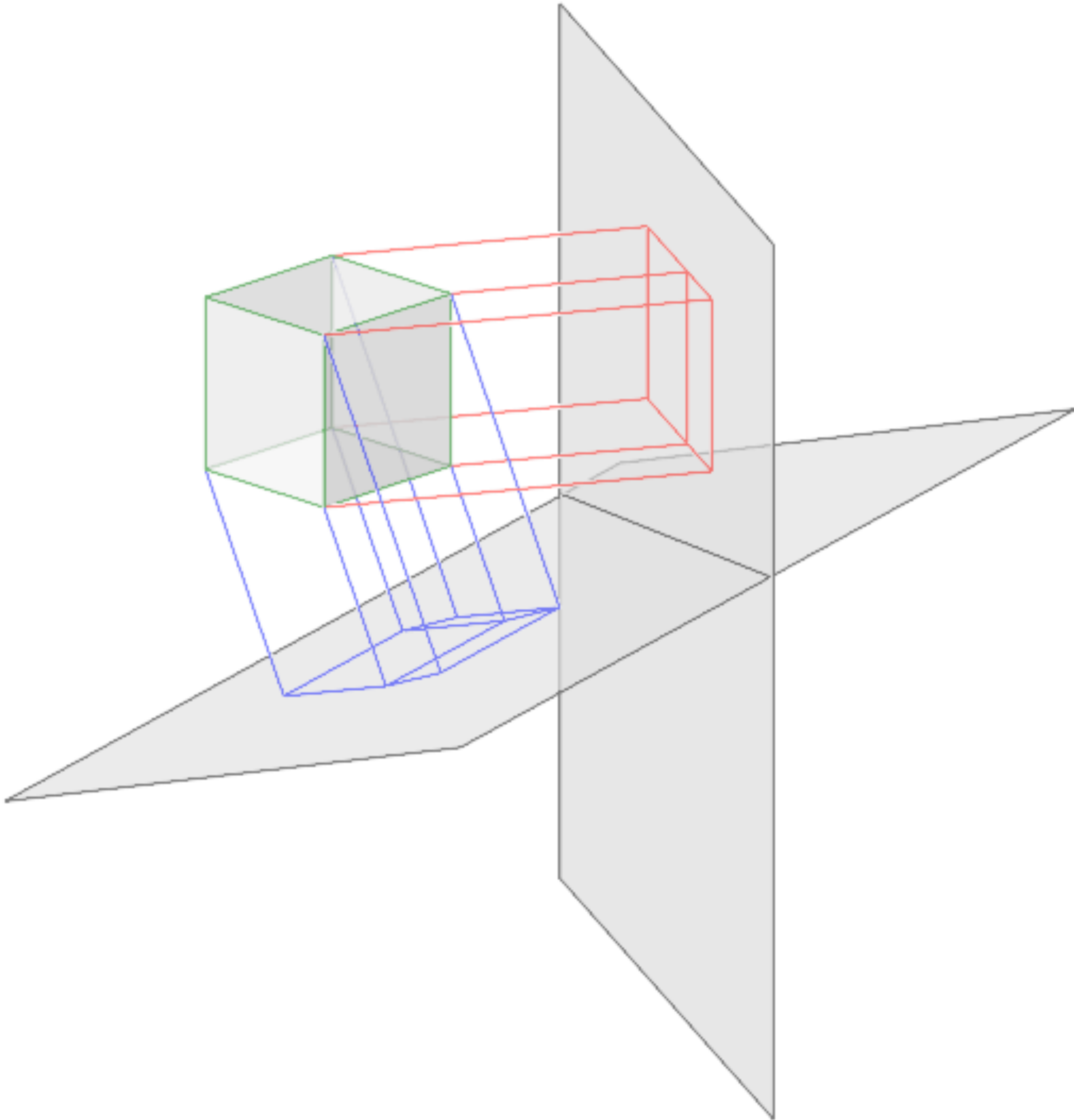
Descriptive Geometry and Projection

PARALLEL ORTHOGRAPHIC PROJECTION WITH PLANES OF PROJECTION PLUMB TO ONE ANOTHER,
BUT NOT NORMAL TO ALL OBJECTS



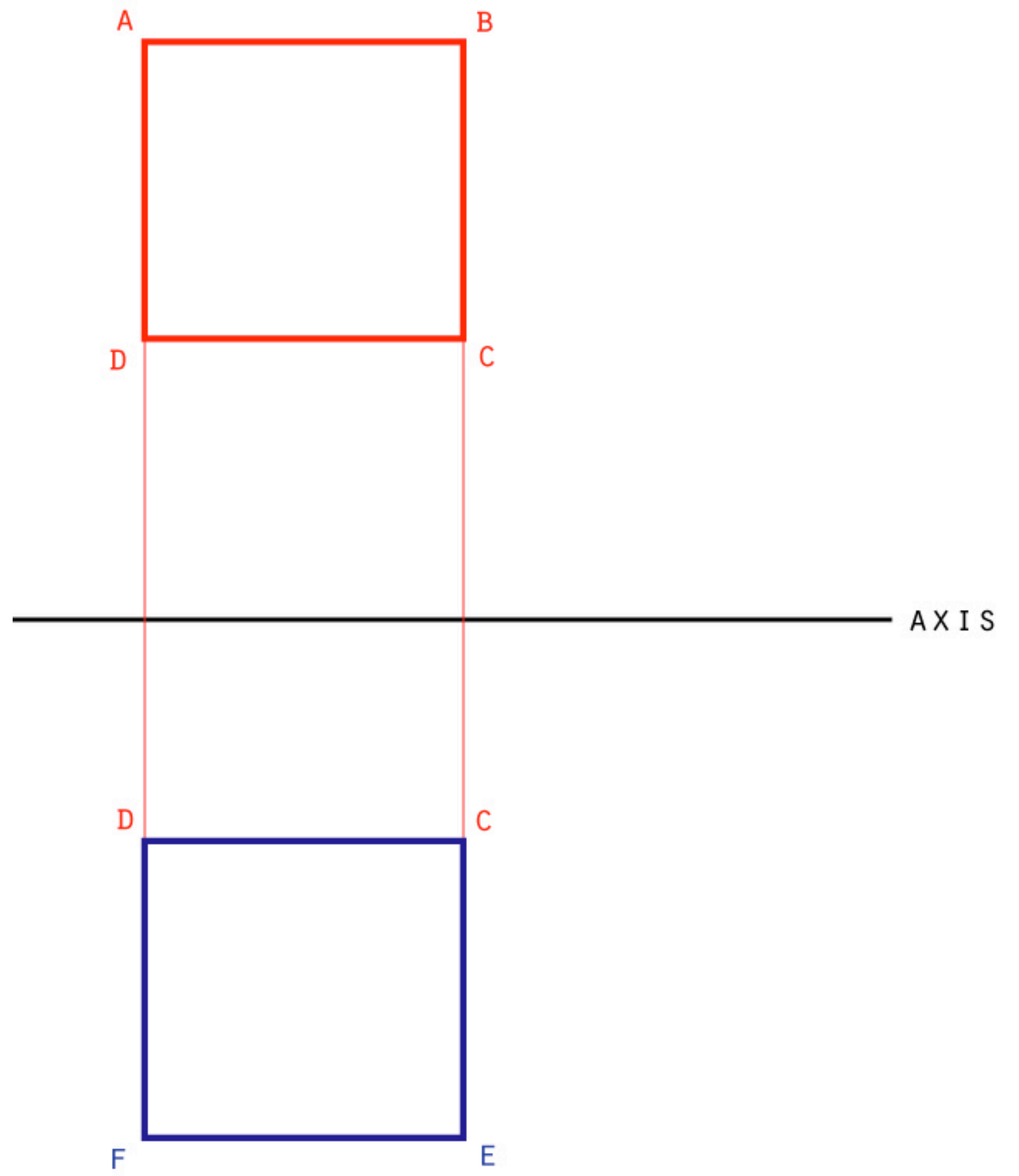
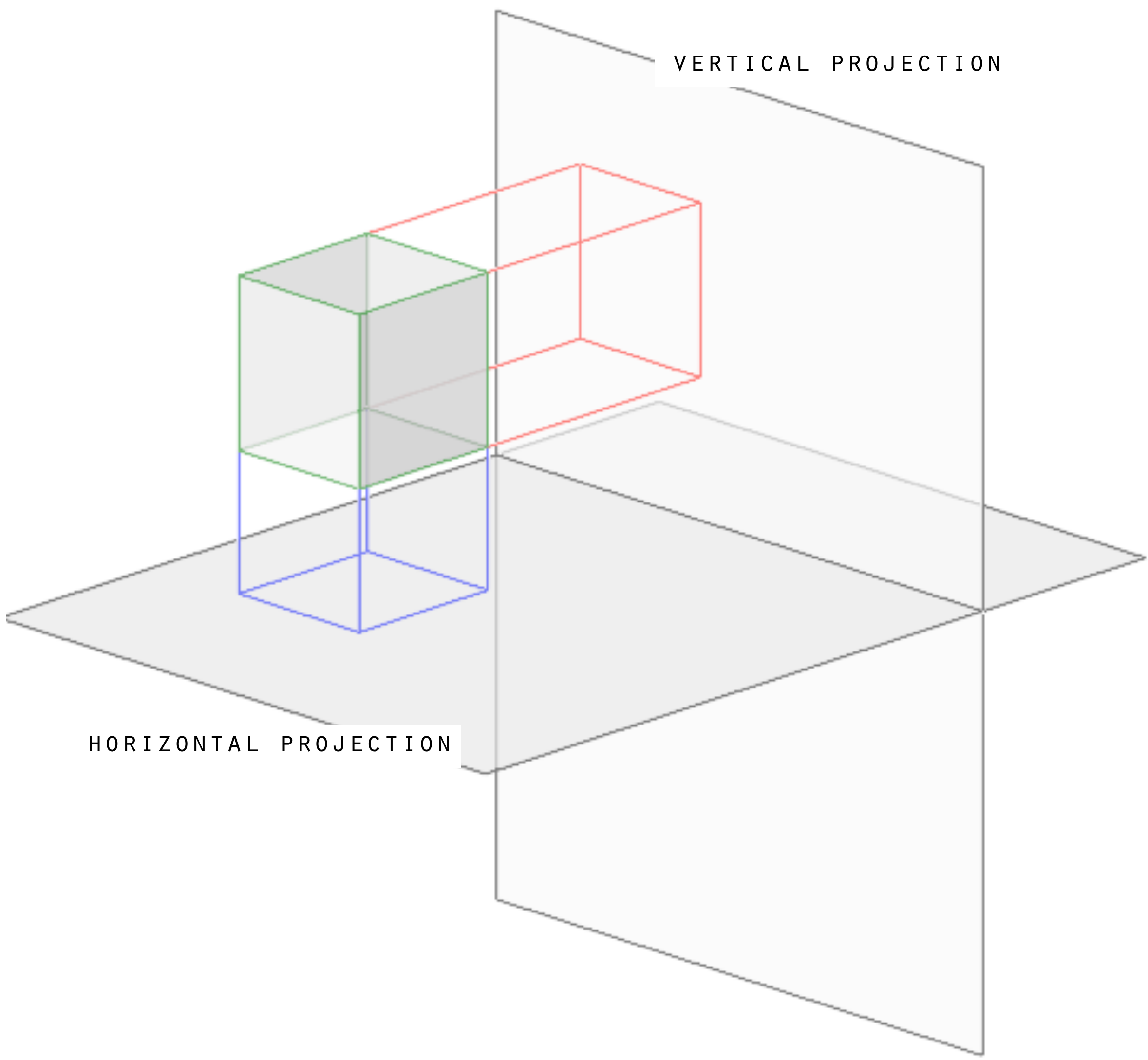
Descriptive Geometry and Projection

PARALLEL ORTHOGRAPHIC PROJECTION WITH PLANES OF PROJECTION OBLIQUE TO ONE ANOTHER,
AND OBLIQUE TO MOST OBJECT EDGES

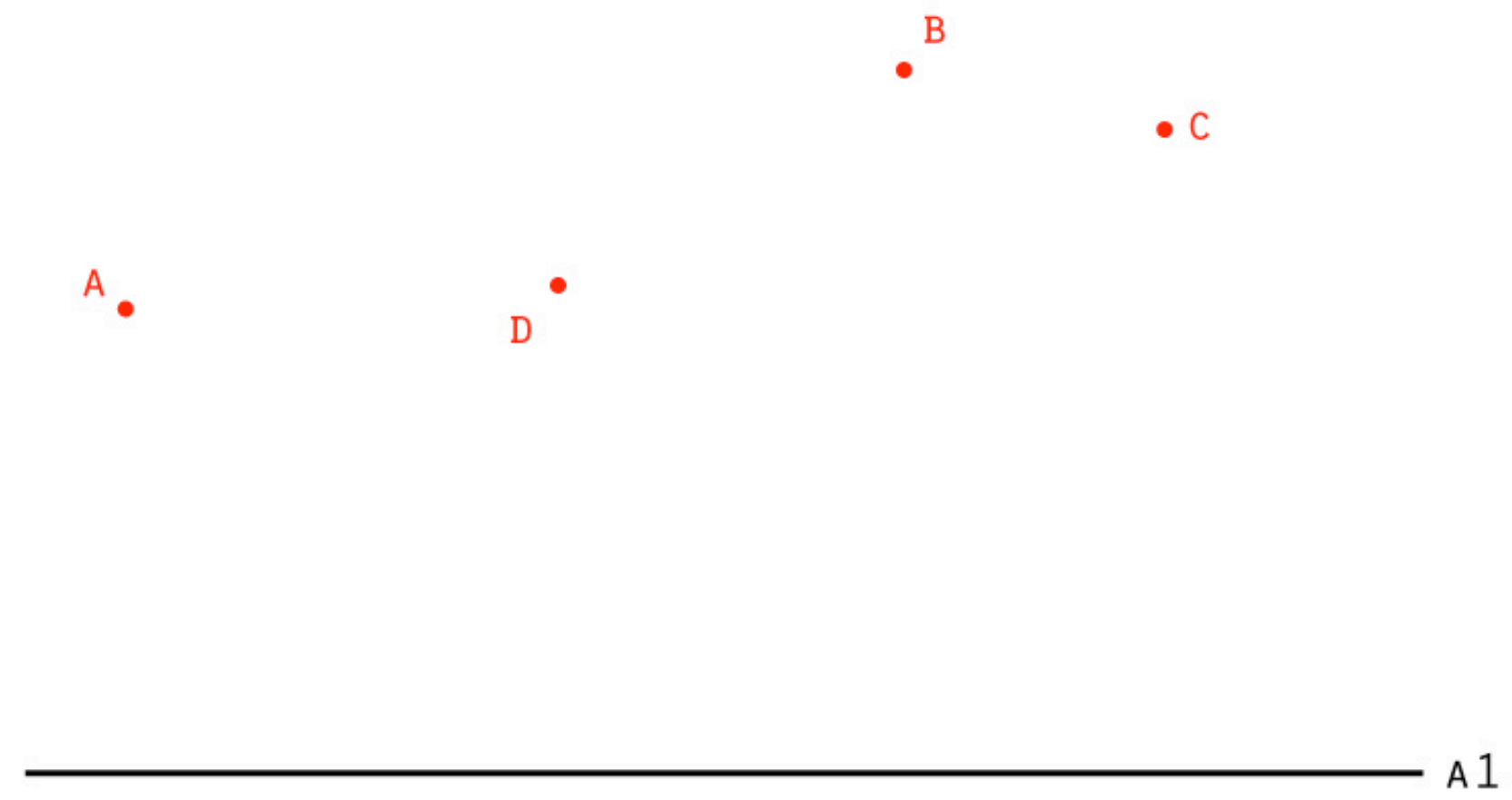
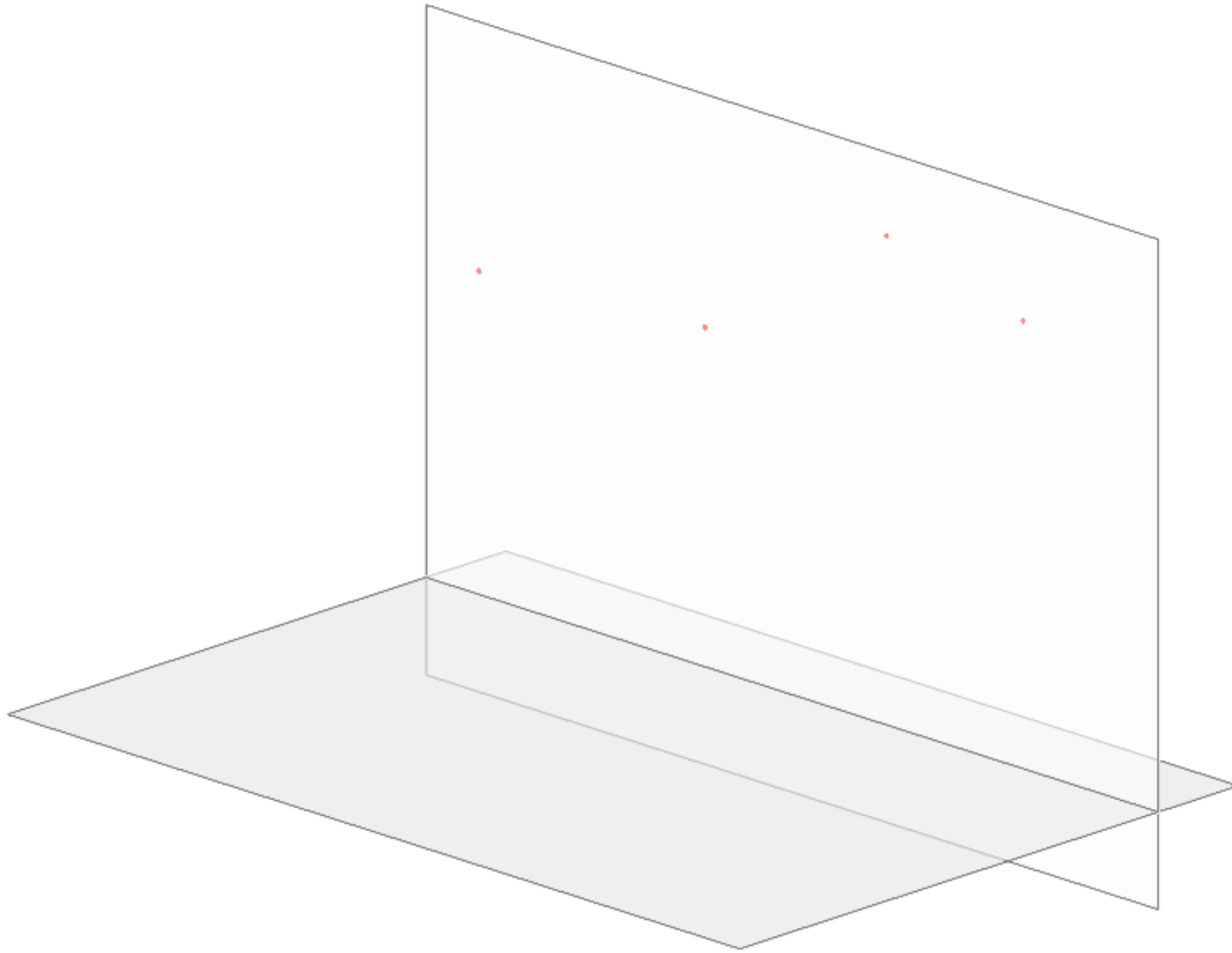


Descriptive Geometry and Projection

CONVENTIONS AND TERMINOLOGY

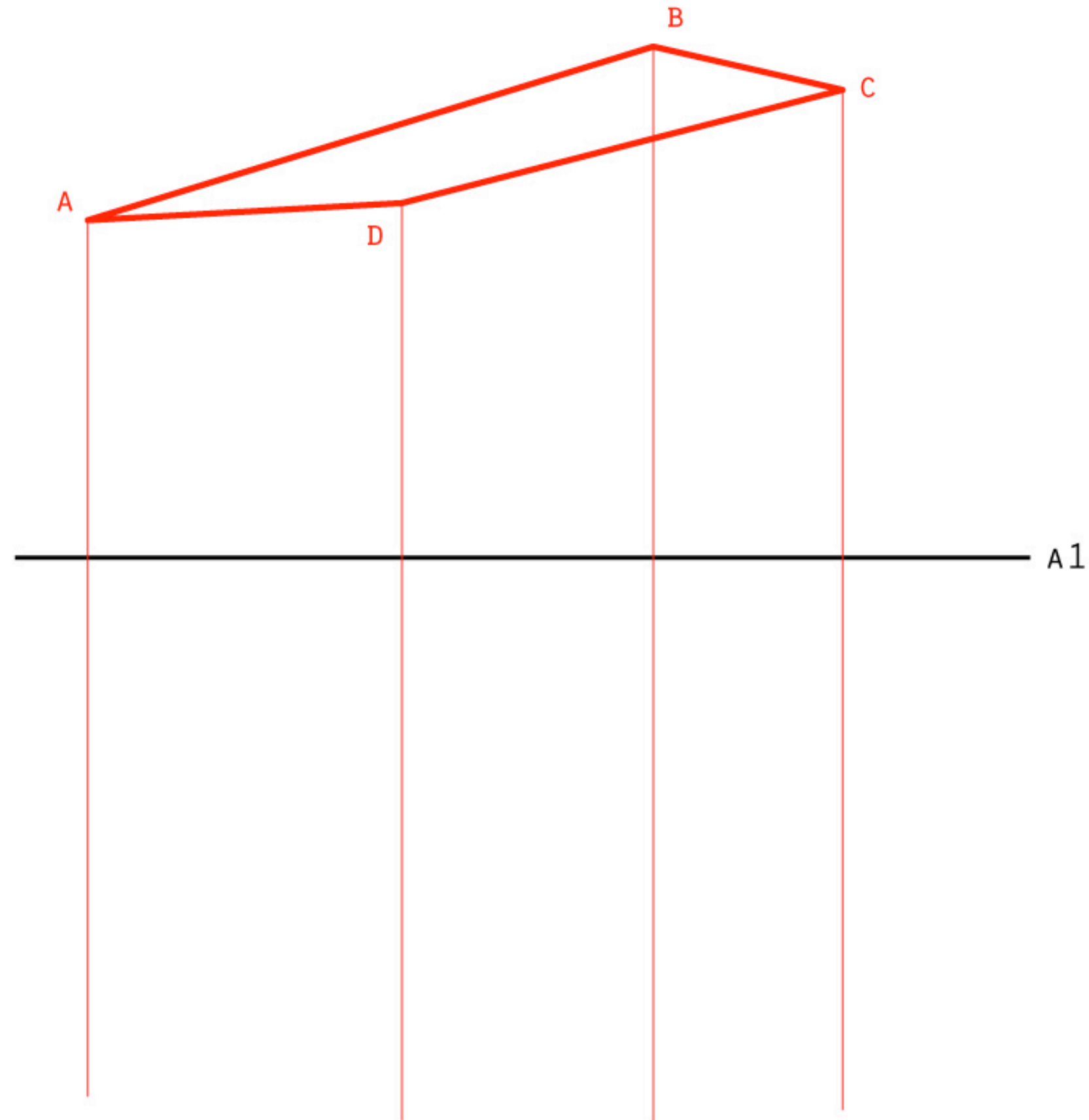
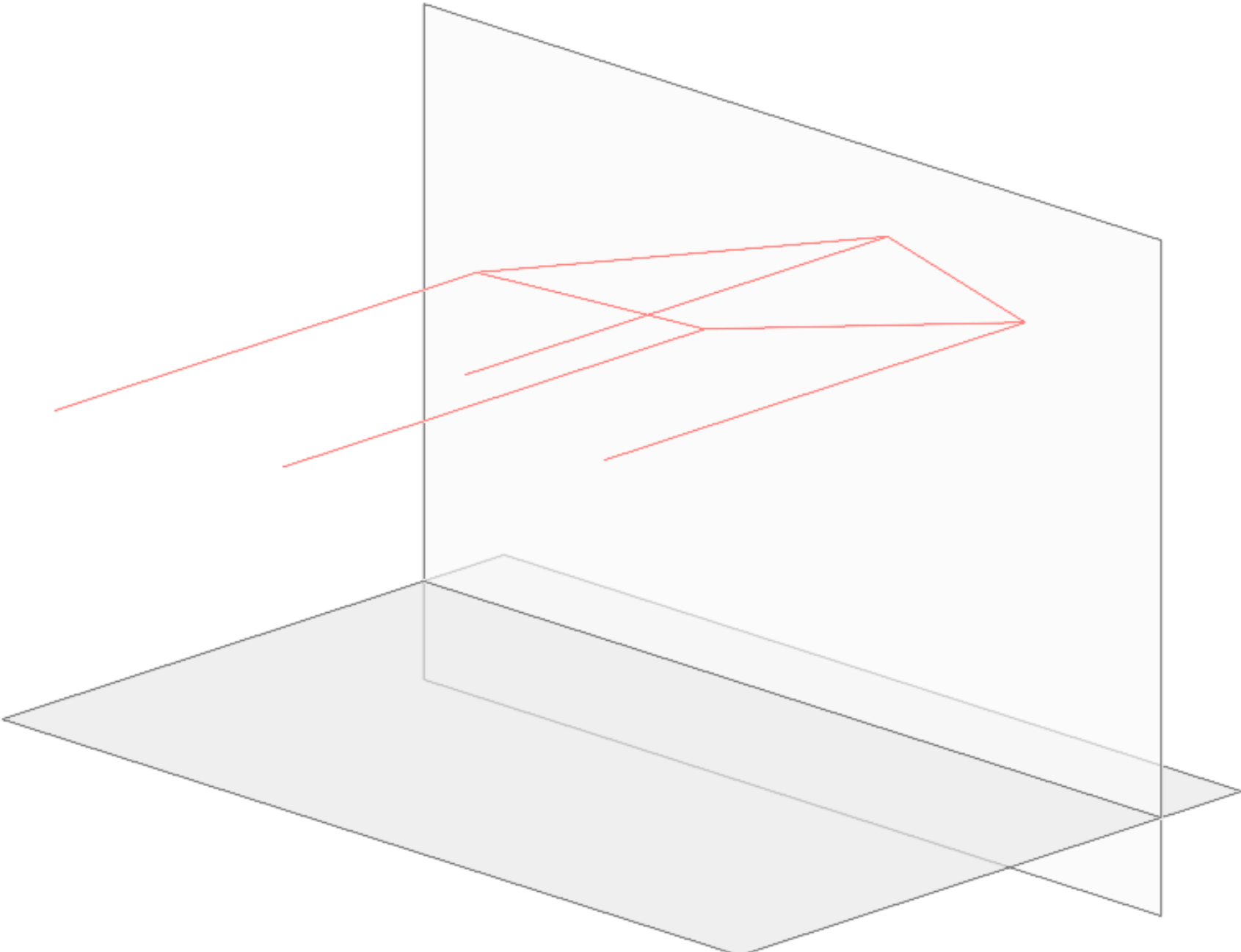


ARRANGE 4 TRACE POINTS IN VERTICAL PROJECTION



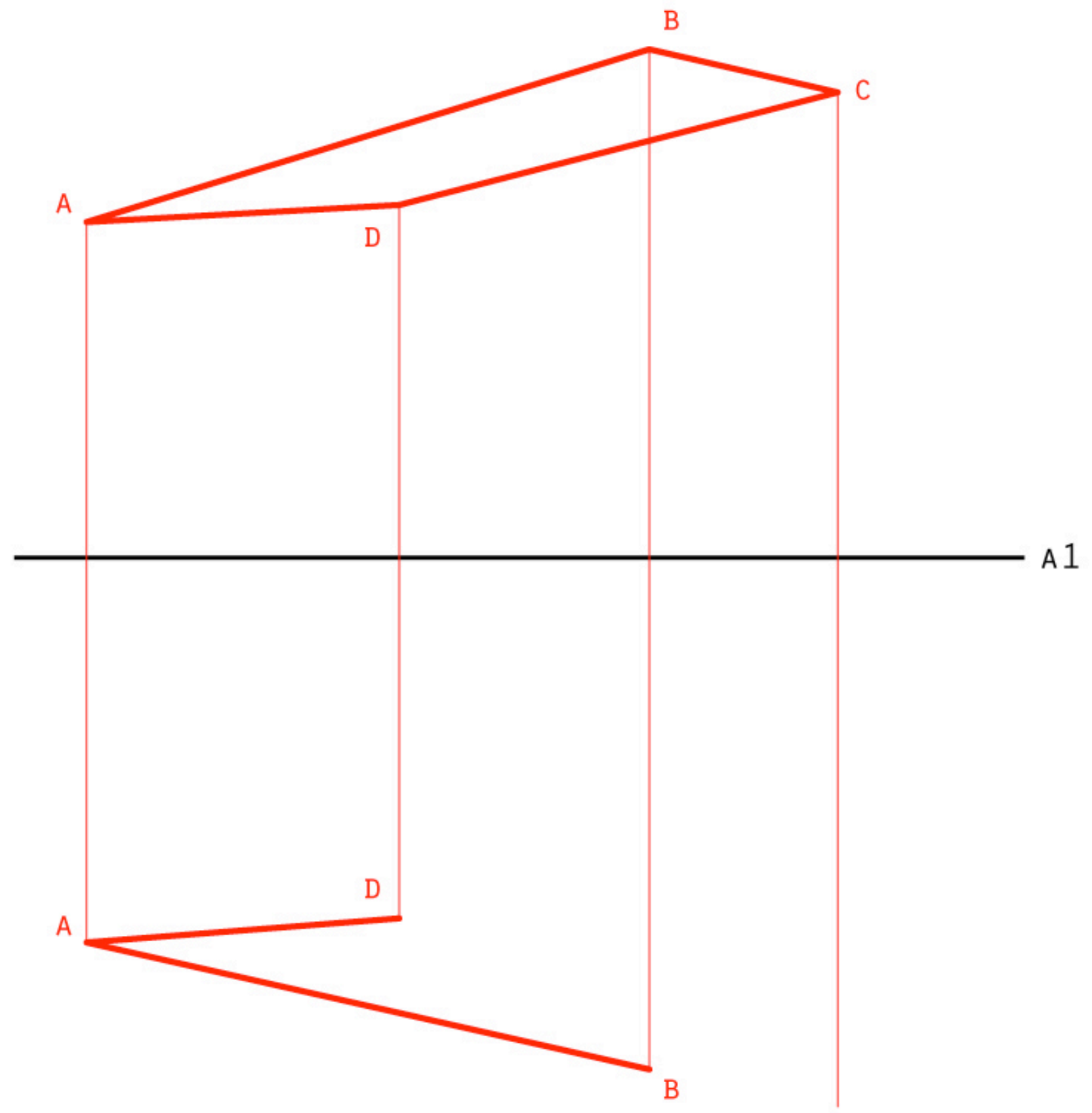
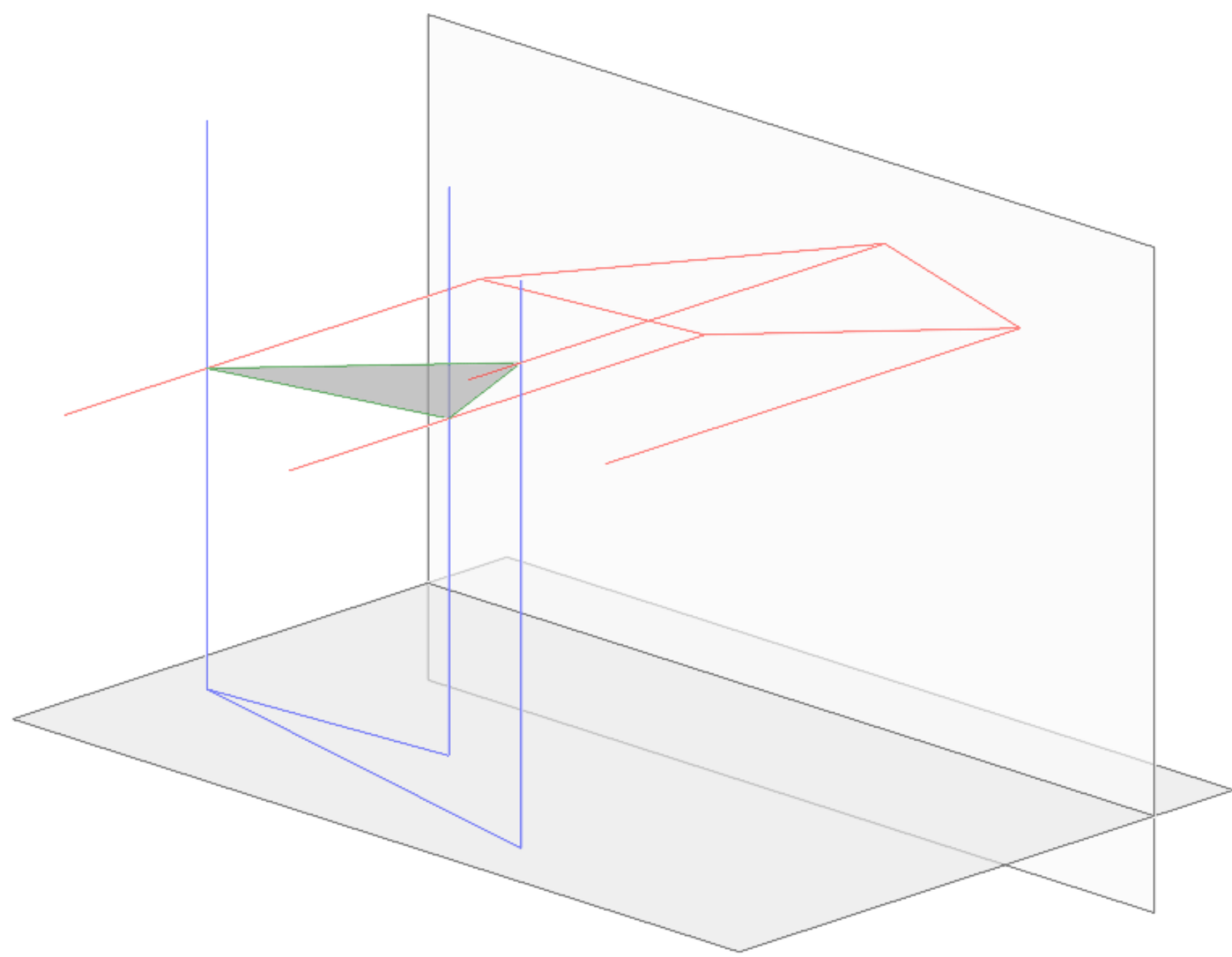
CONNECT THE POINTS AND EXTEND PROJECTOR LINES

PROJECTOR LINES ARE ALWAYS PERPENDICULAR TO THE AXIS



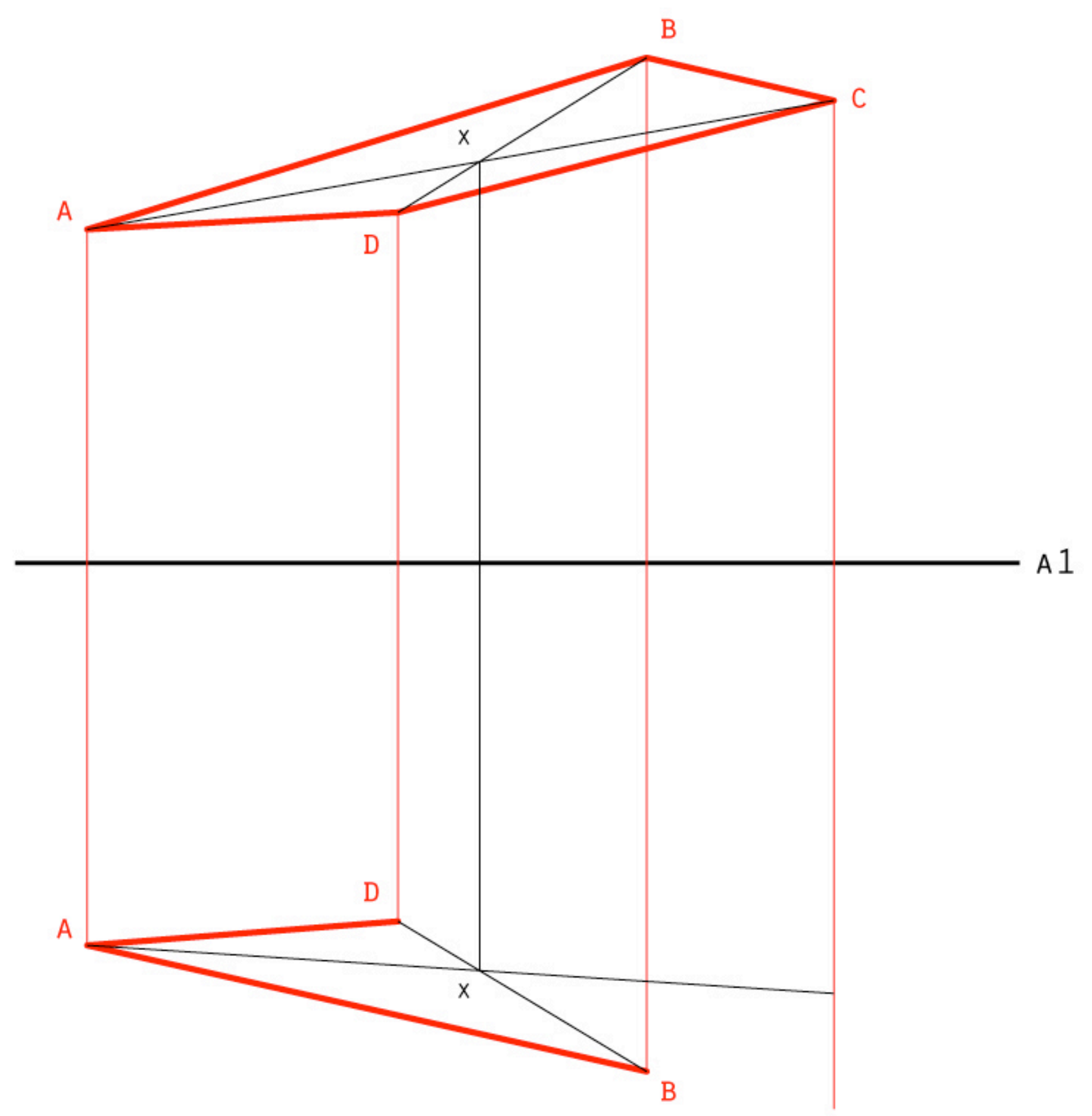
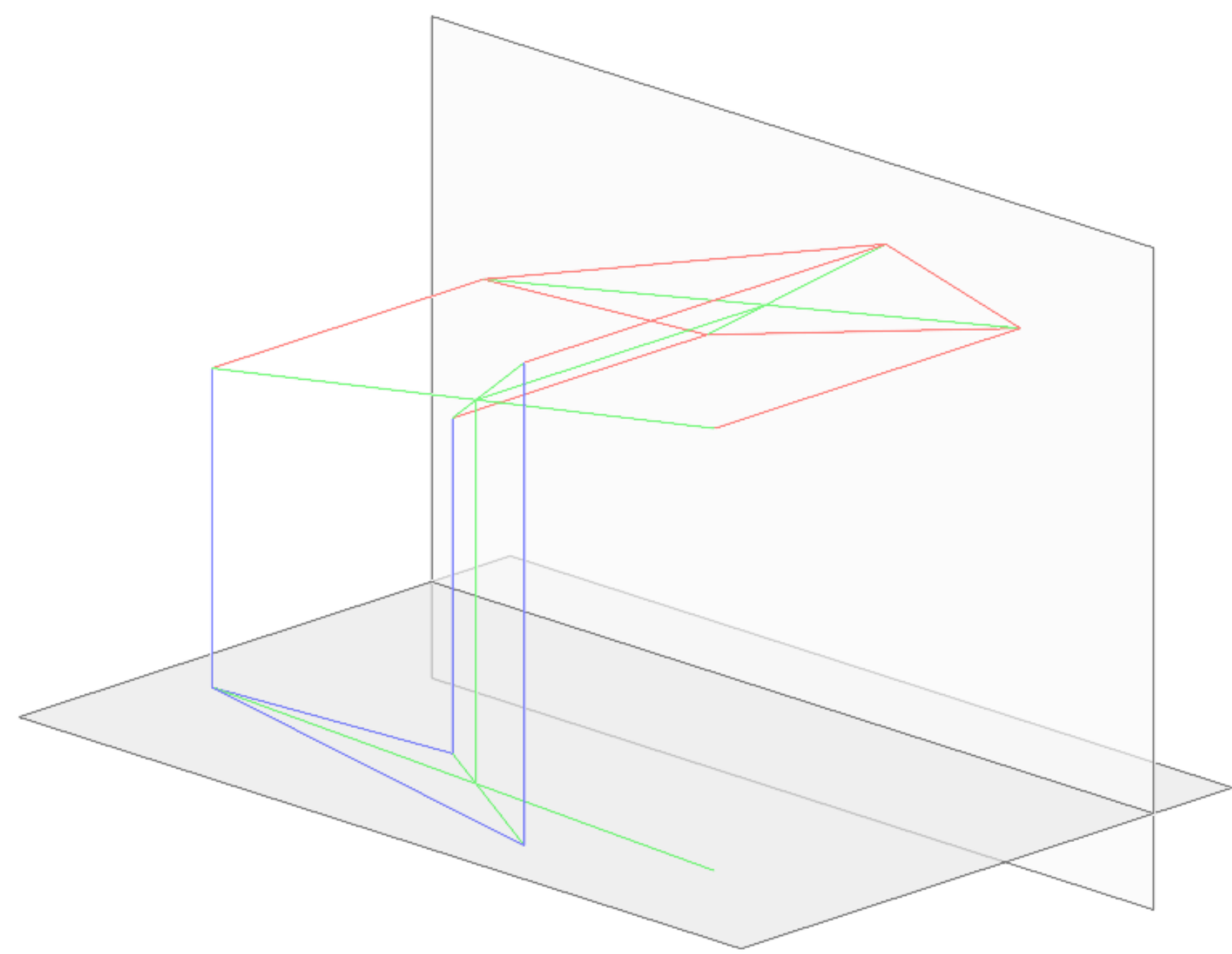
DEFINE A PLANE THROUGH THE HORIZONTAL TRACE

ANY THREE NON-COLINEAR POINTS DEFINE A PLANE



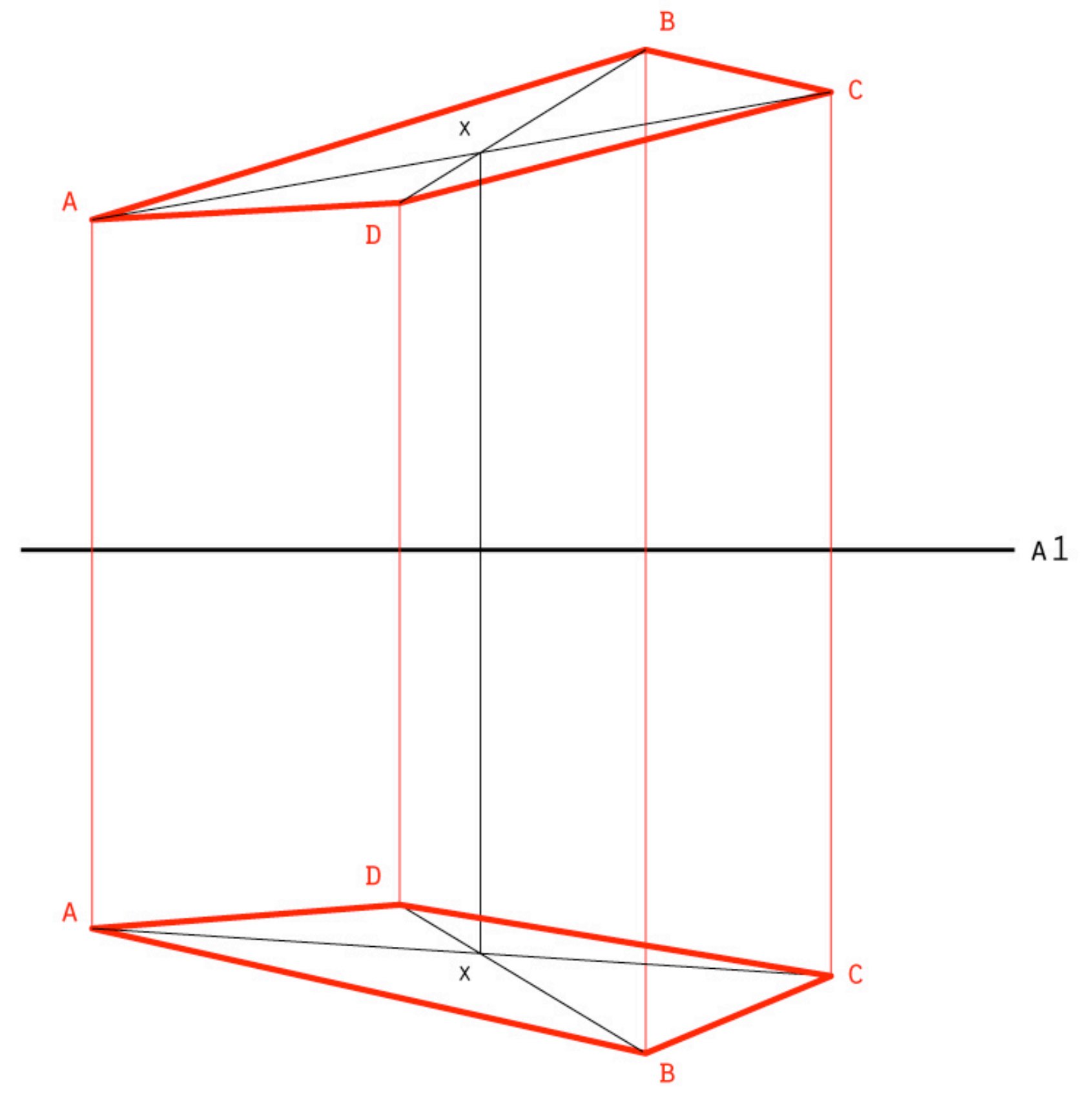
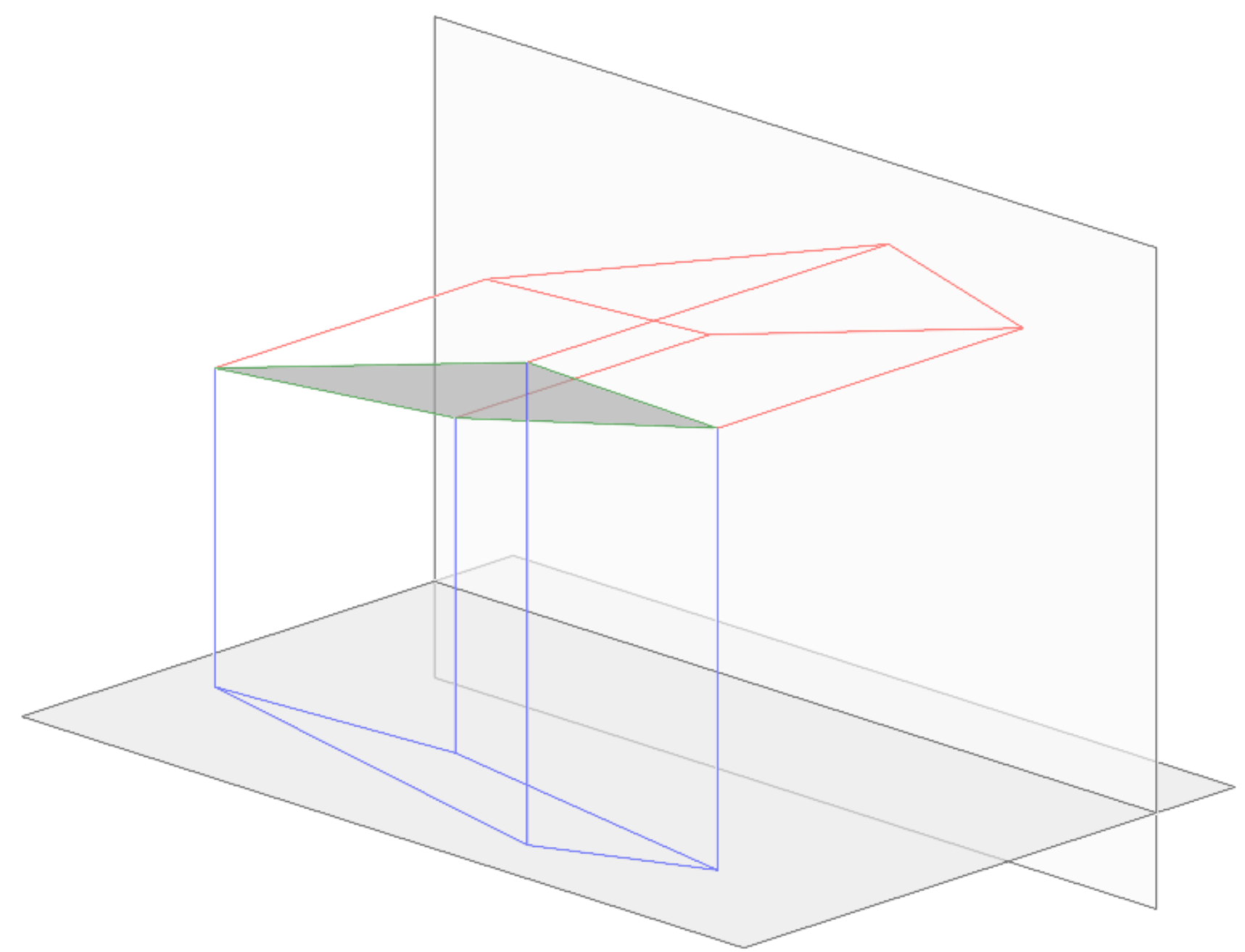
FIND FOURTH POINT USING CROSSING LINES

THE 'MARIONETTE' METHOD ACTS TO ENSURE PLANARITY OF THE SURFACE THROUGH LINES INSCRIBED ON ITS FACE



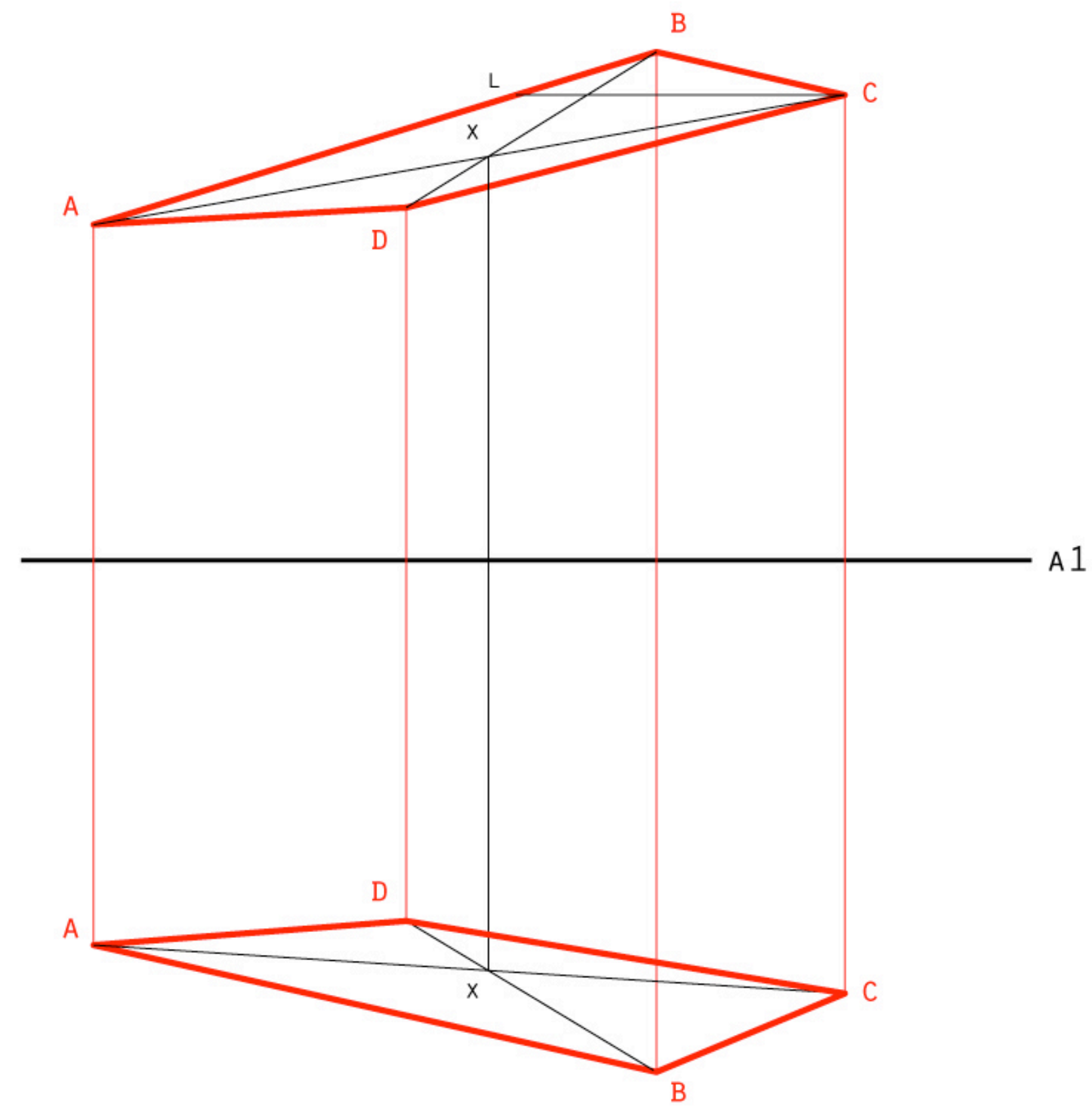
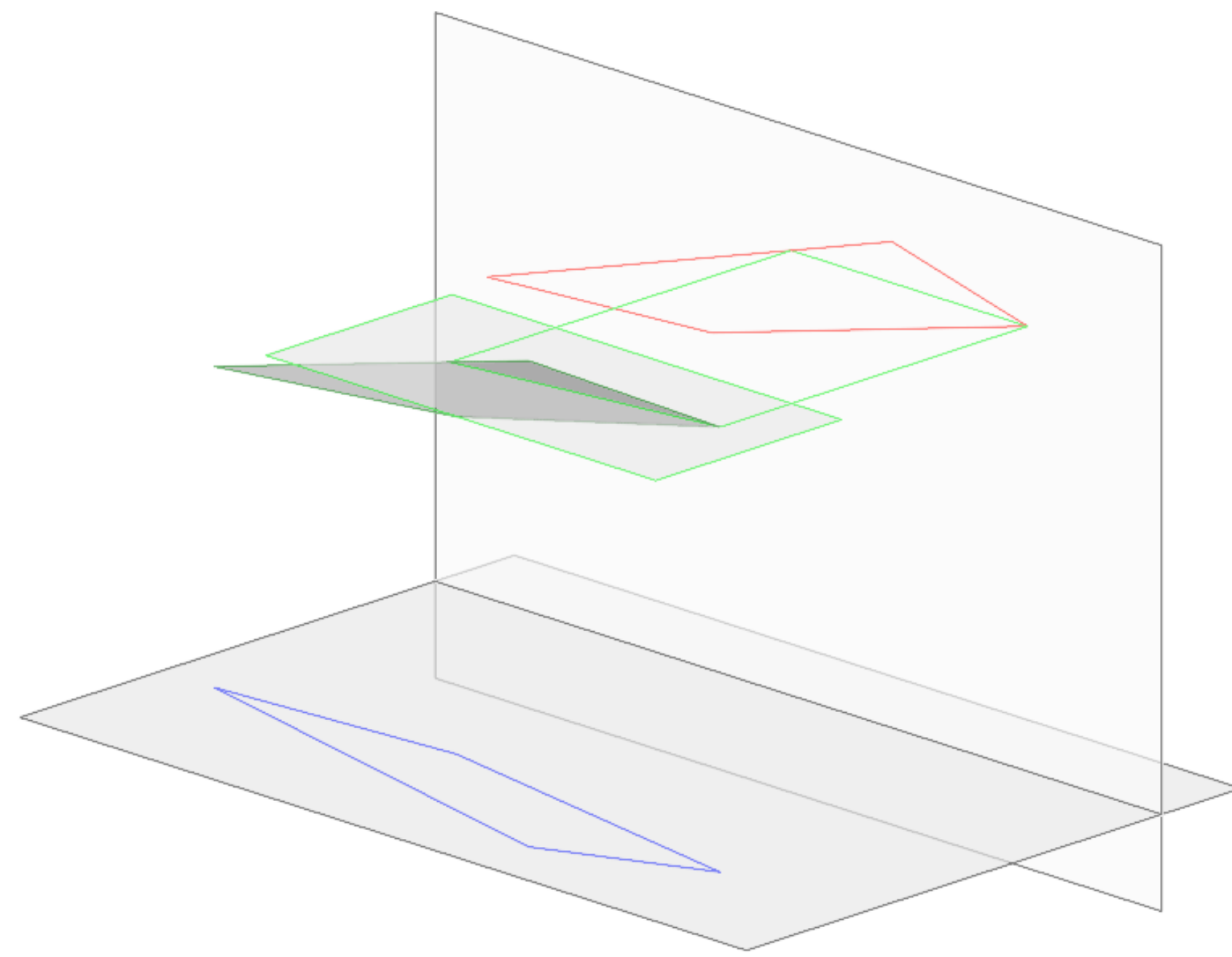
COMPLETE FIGURE IN HORIZONTAL PROJECTION

THE COMPOSITE OF BOTH PROJECTIONS NOW DESCRIBE A UNIQUE PLANE FIGURE; THE NEXT STEP IS TO FIND THE 'TRUE SHAPE'



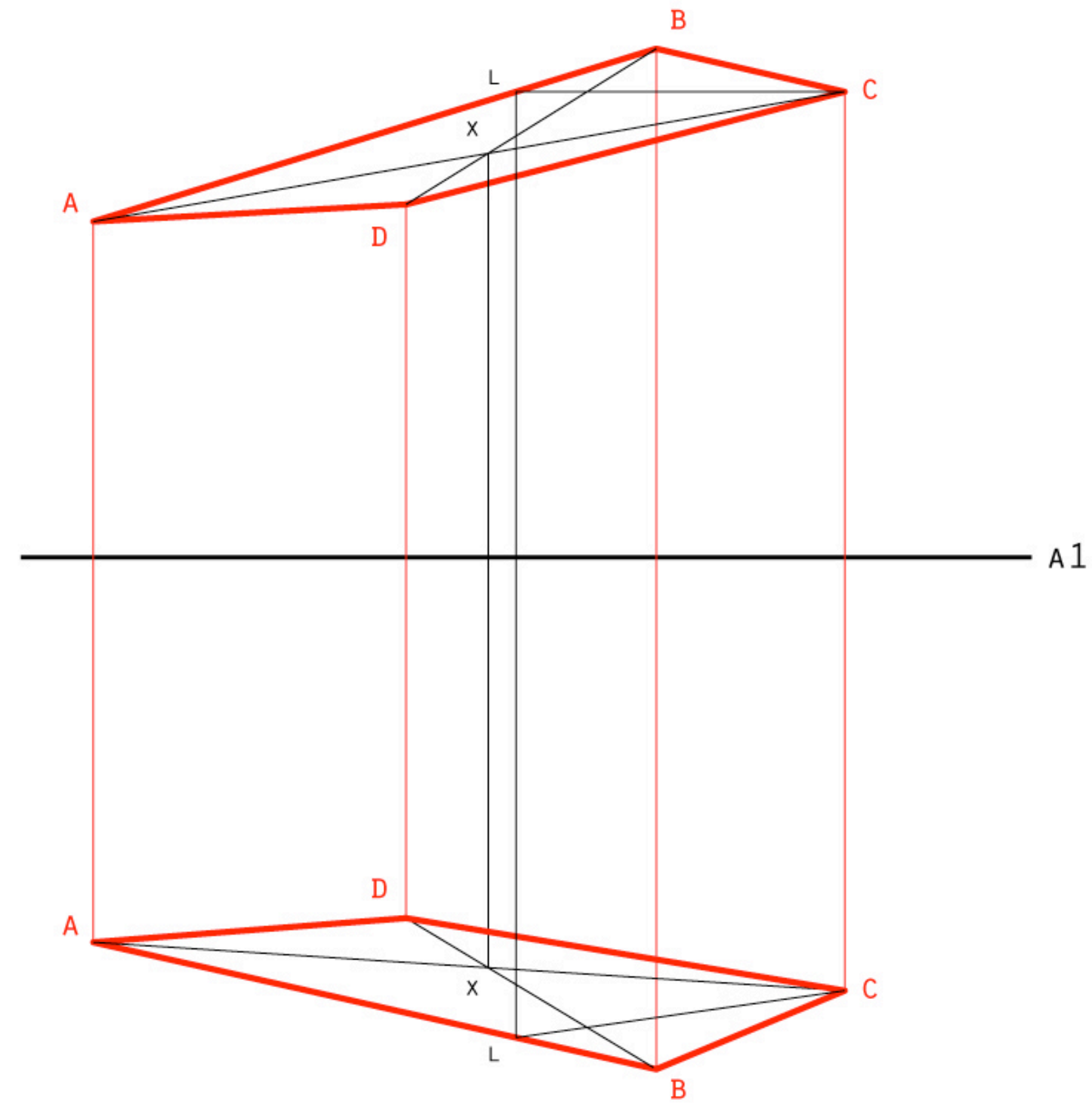
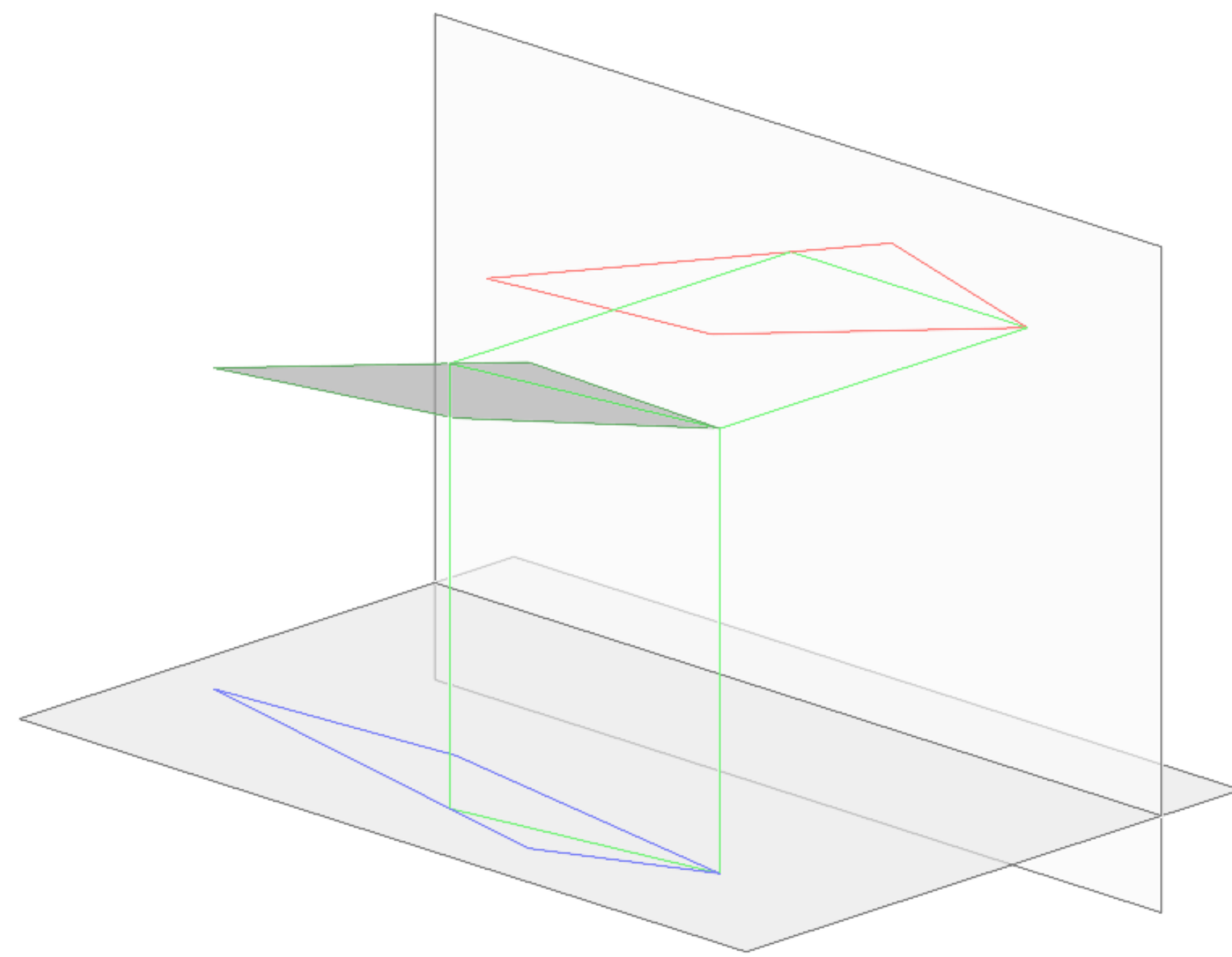
INSCRIBE A LEVEL LINE ON THE PLANE

A LEVEL LINE IS HORIZONTAL IN THE VERTICAL PROJECTION; IT TRACES THE INTERSECTION OF THE OBLIQUE PLANE WITH A SECOND HORIZONTAL PLANE



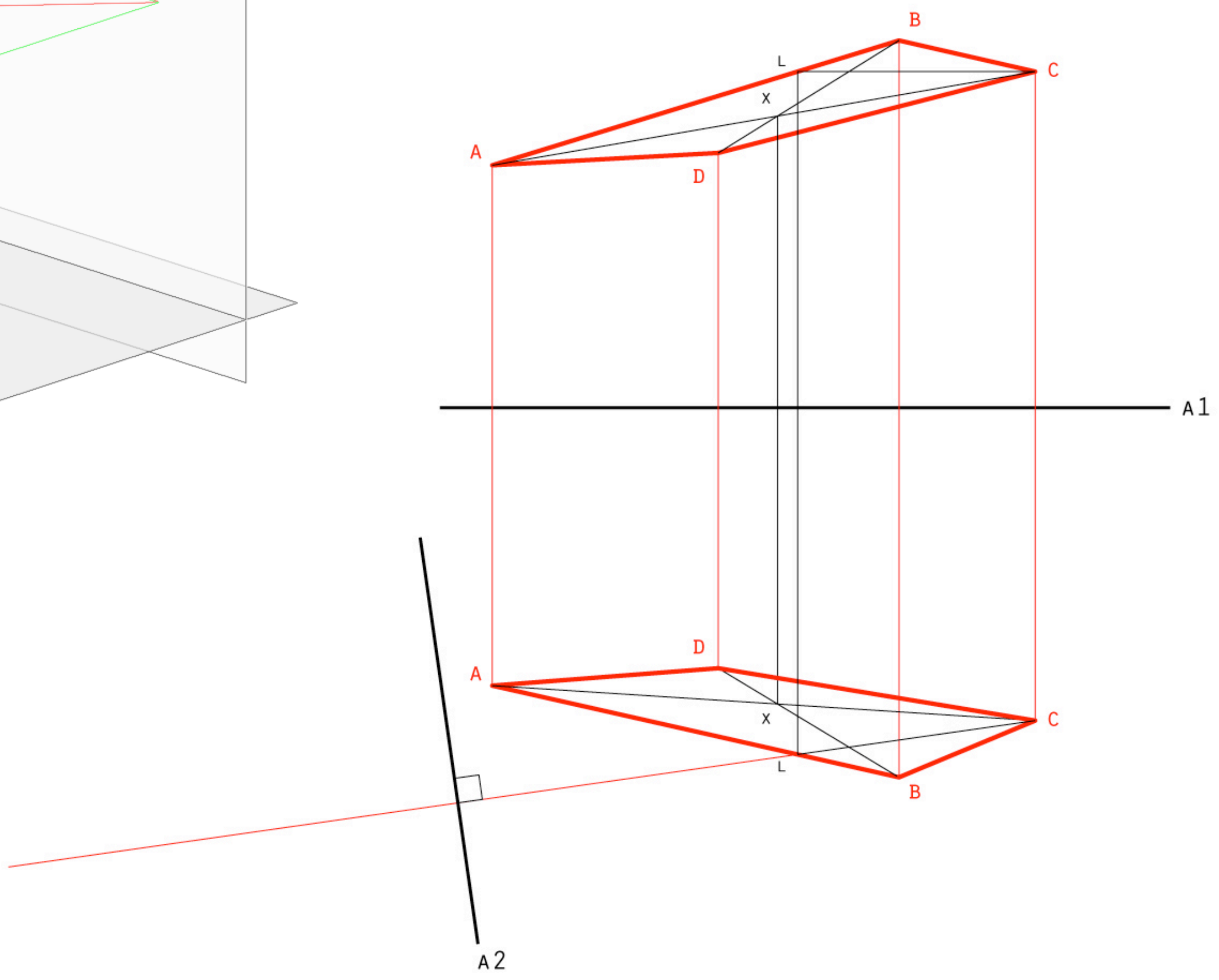
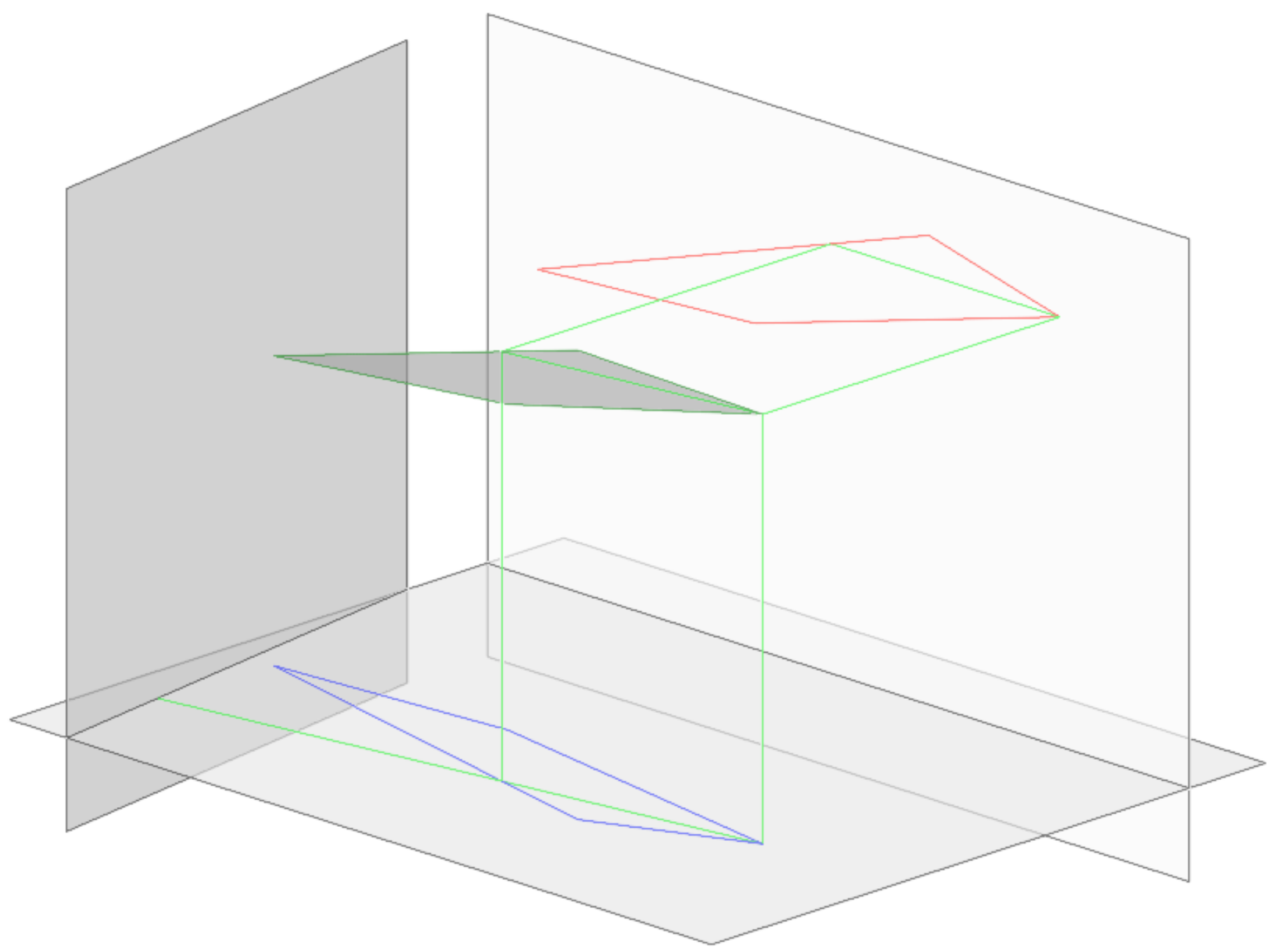
FIND THE LEVEL LINE IN THE HORIZONTAL PROJECTION

A PROJECTOR LINE FROM L IN THE VERTICAL PROJECTION MEETS L IN THE HORIZONTAL PROJECTION



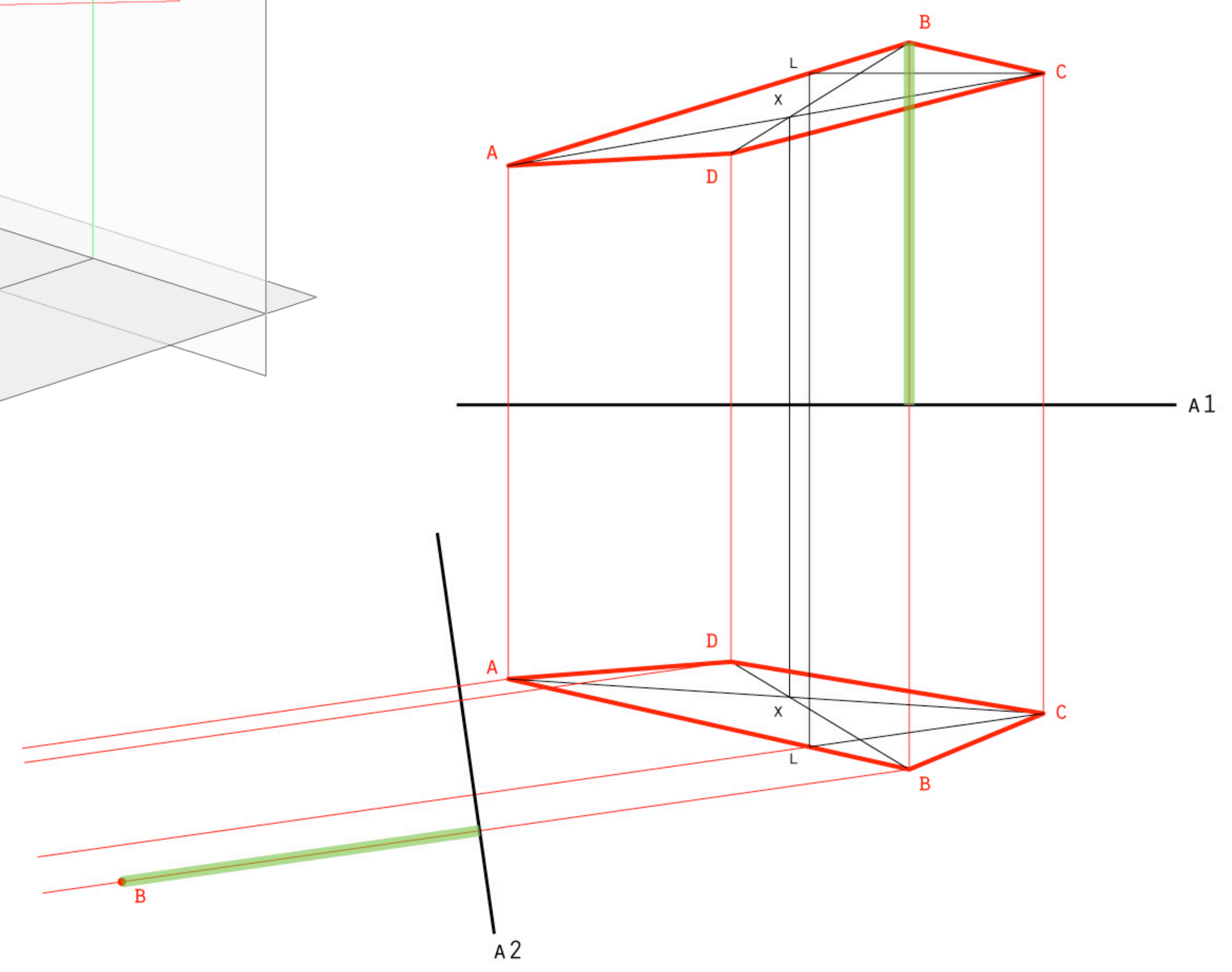
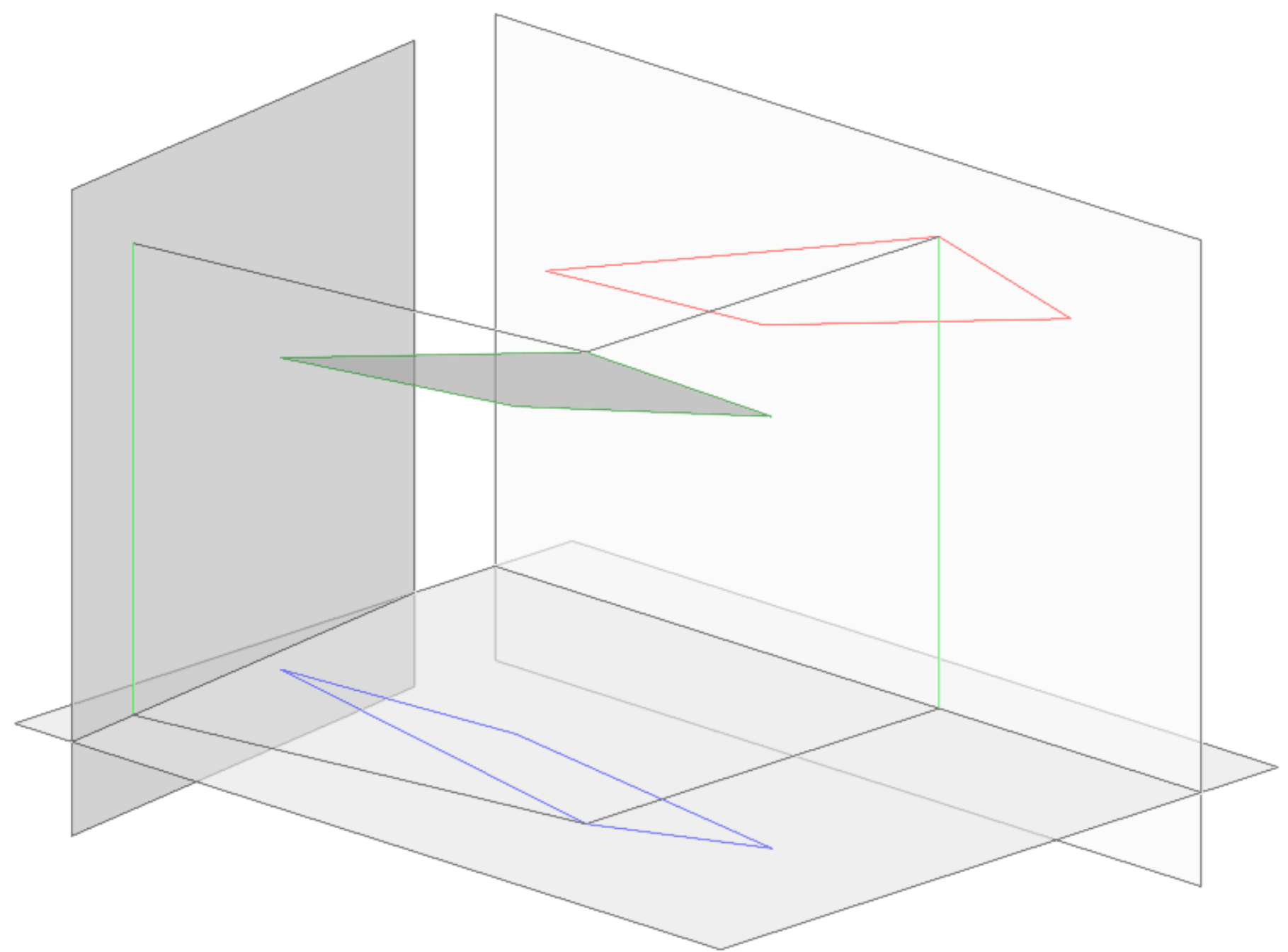
ESTABLISH A NEW VERTICAL PLANE PROJECTION

MAKE THIS PLANE PERPENDICULAR TO THE LEVEL LINE IN THE HORIZONTAL PROJECTION



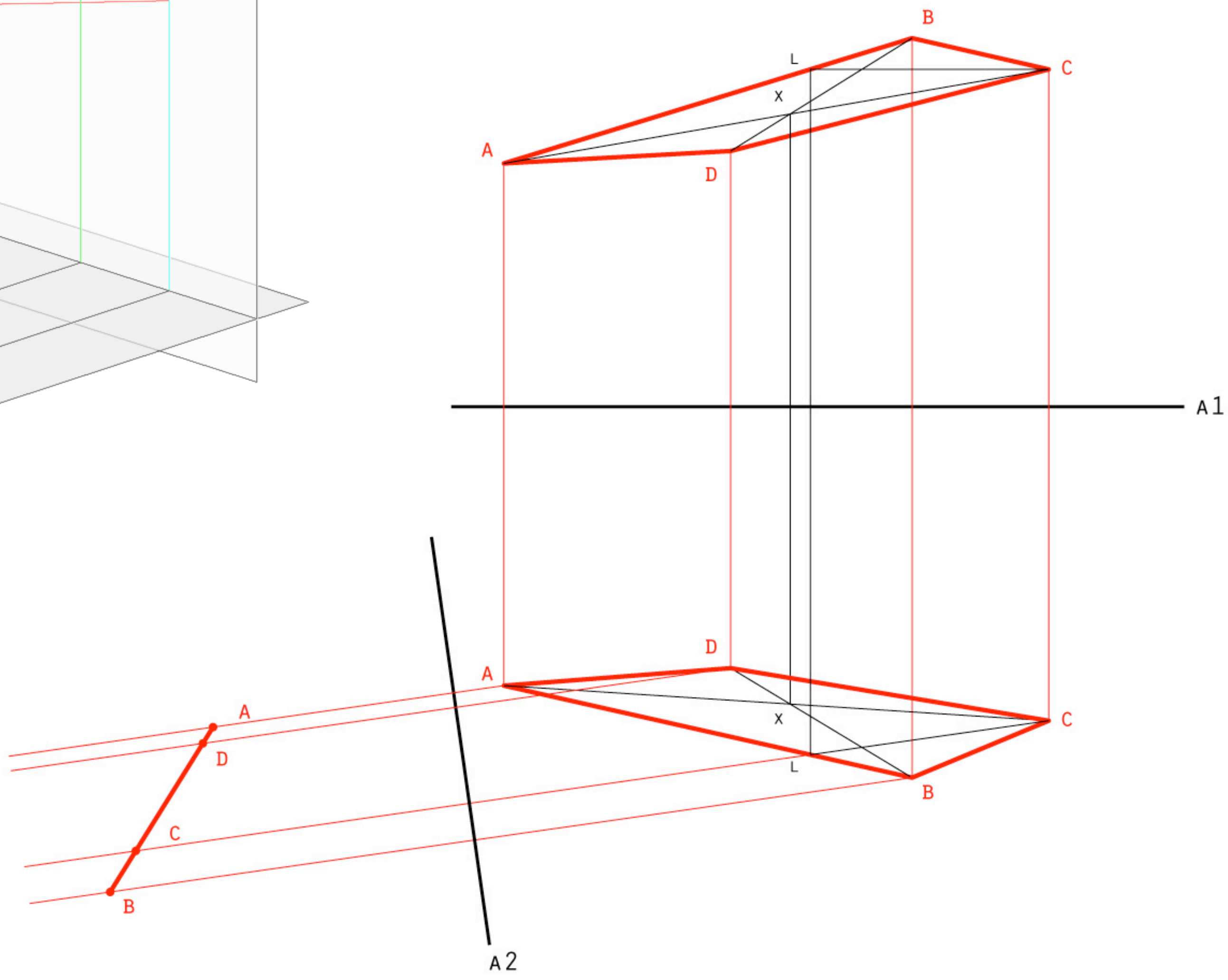
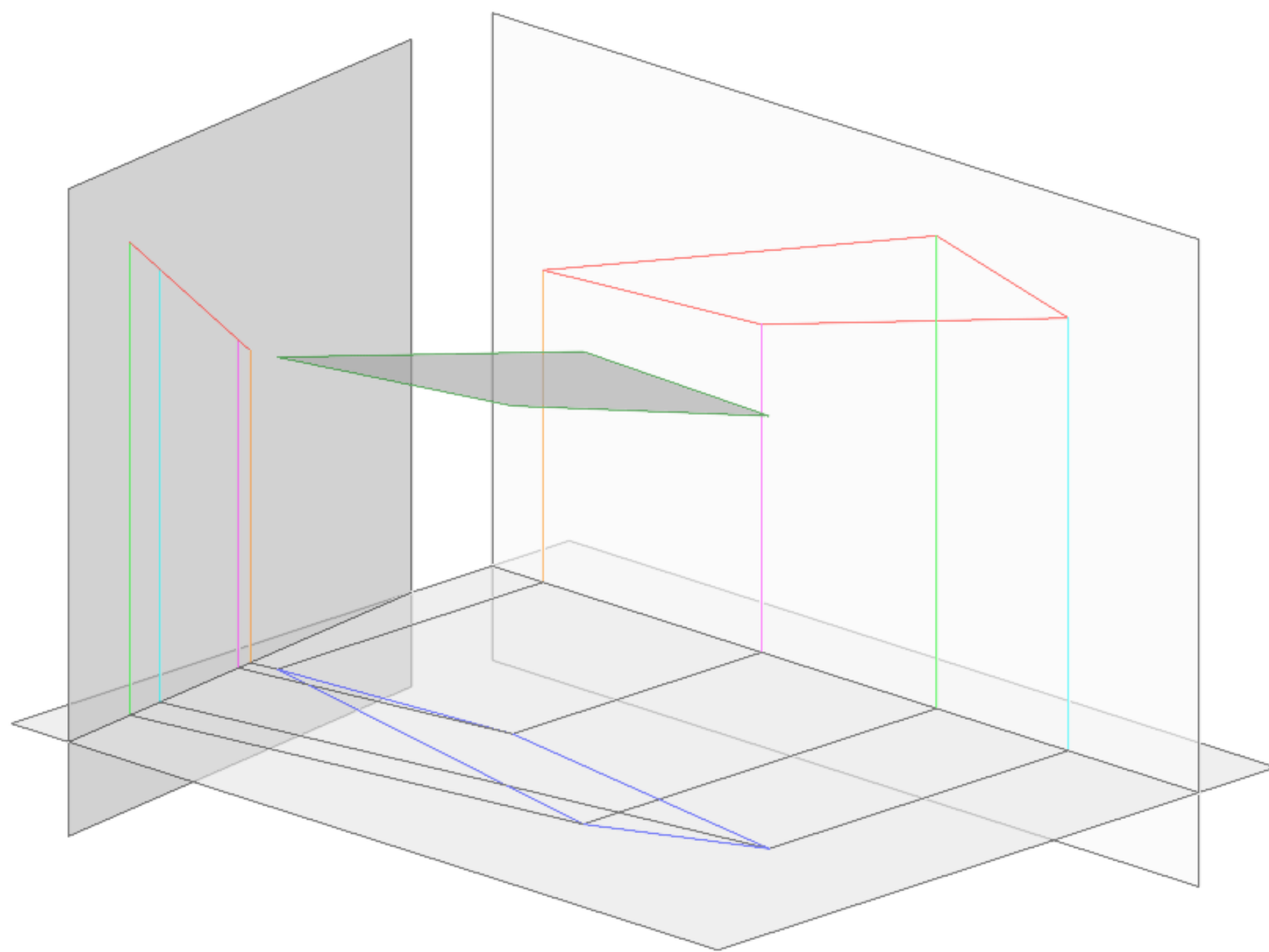
TRANSFER TRACES TO NEW PROJECTION

USE A DIVIDER TO DUPLICATE DISTANCES FROM THE ORIGINAL VERTICAL PROJECTION



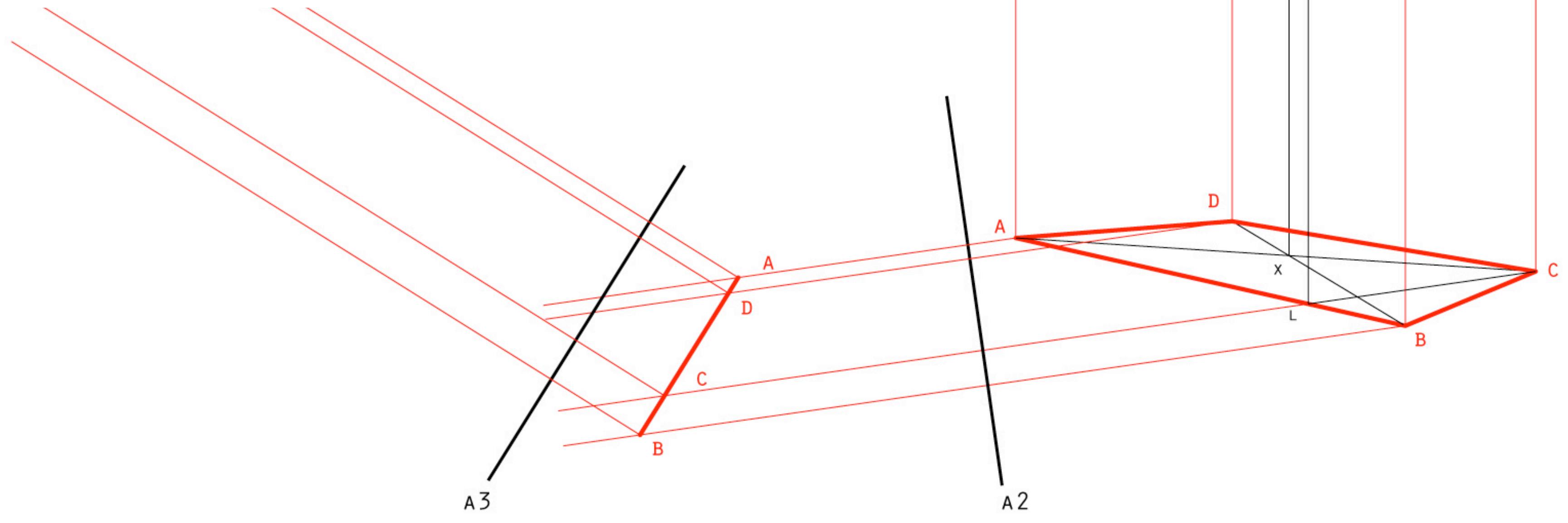
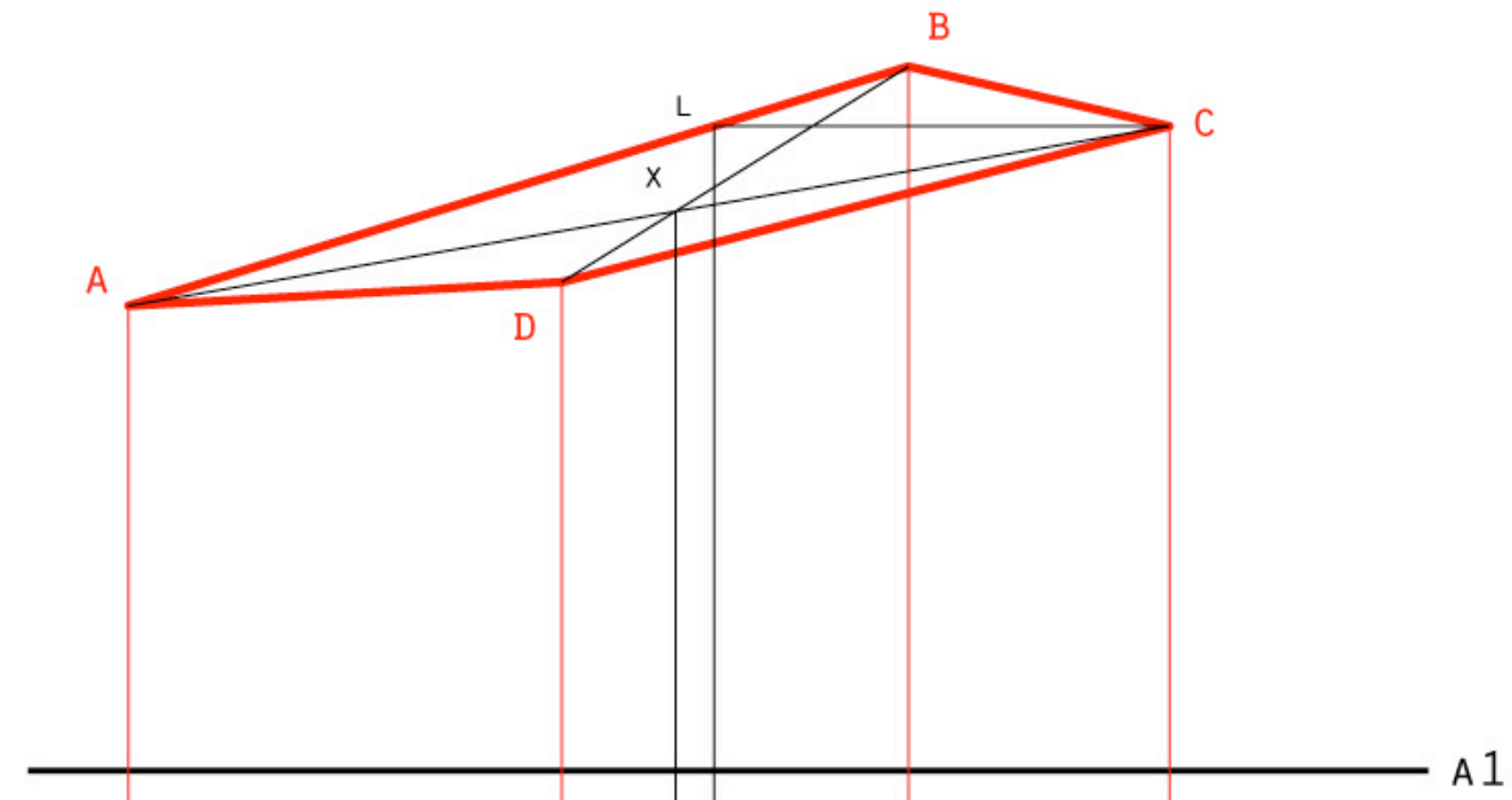
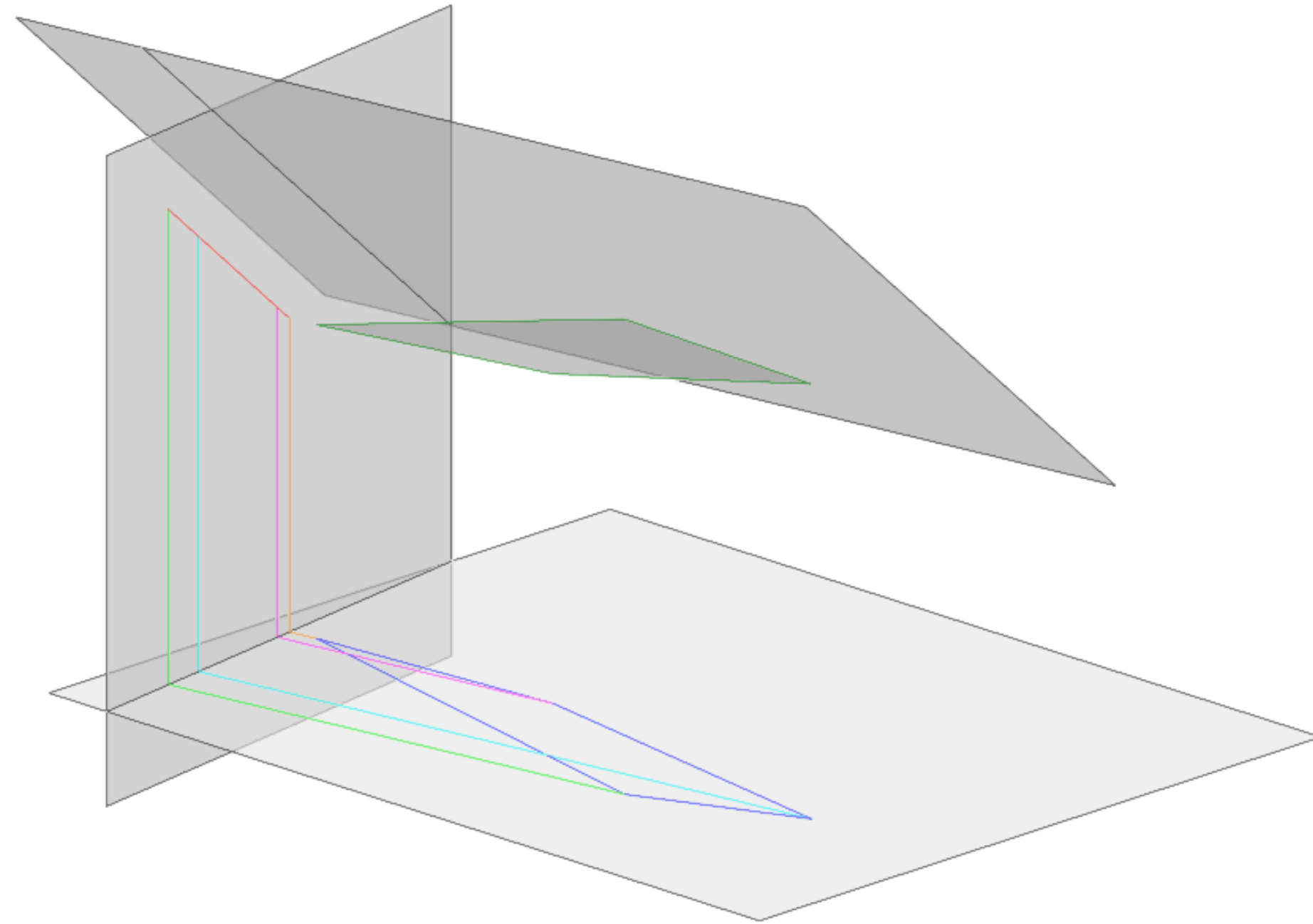
TRANSFER REMAINING TRACES TO REVEAL EDGE VIEW OF PLANE

BY CHOSING A PROJECTION PLANE PERPENDICULAR TO THE LEVEL LINE, WE HAVE ASSURED AN EDGE VIEW



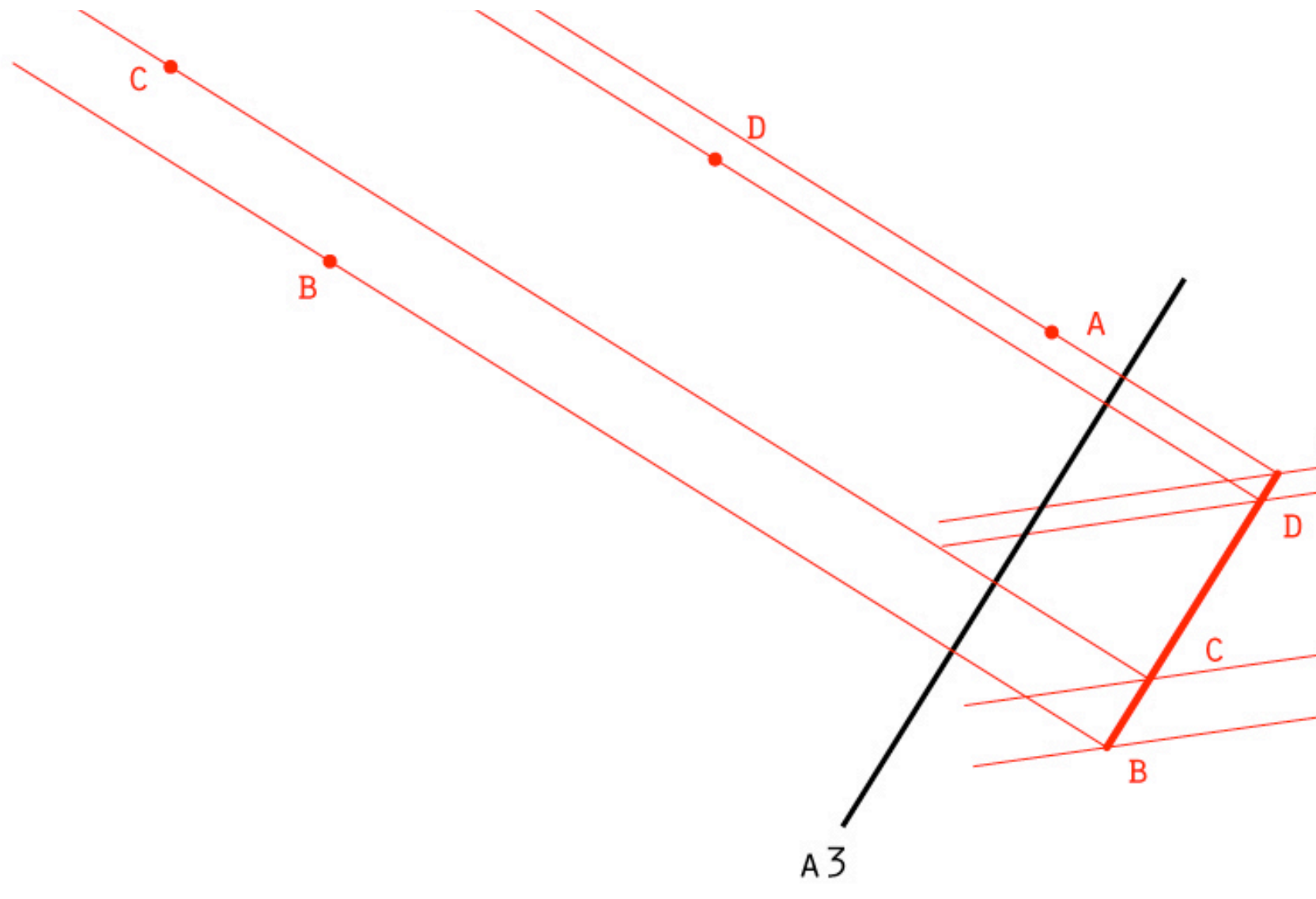
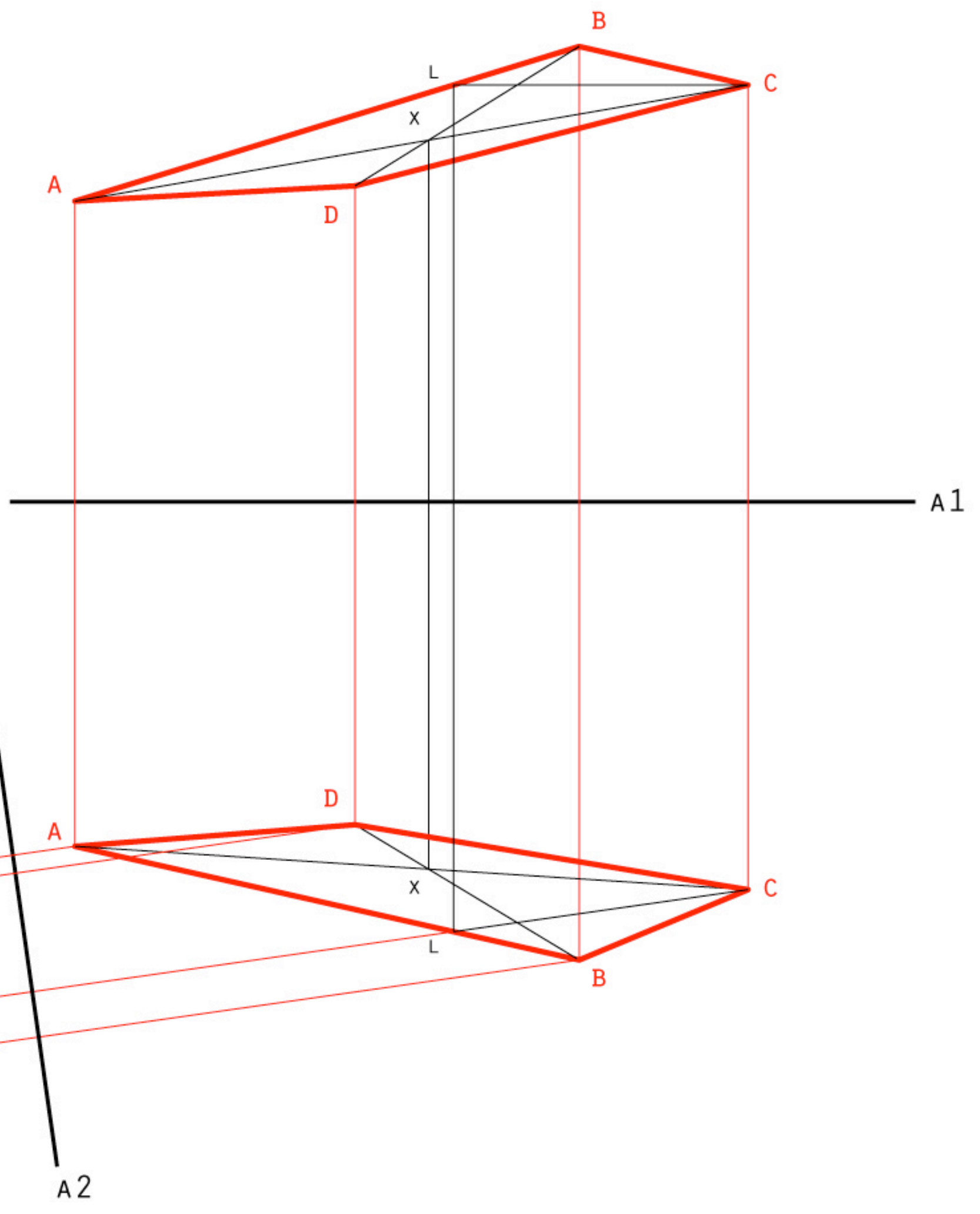
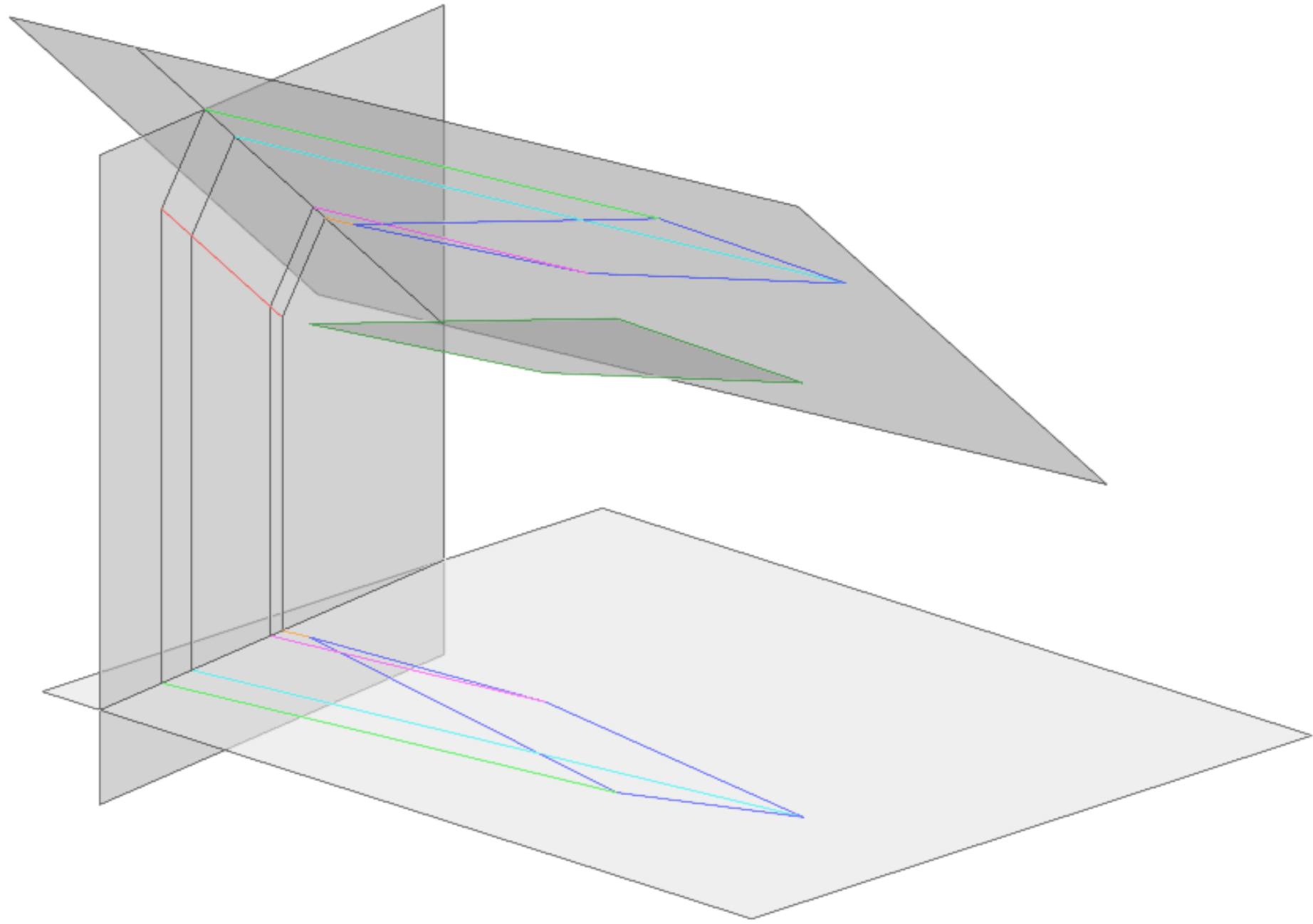
ESTABLISH A NEW PLANE OF PROJECTION

CREATE AN AXIS PARALLEL TO THE EDGE VIEW OF THE OBLIQUE PLANE



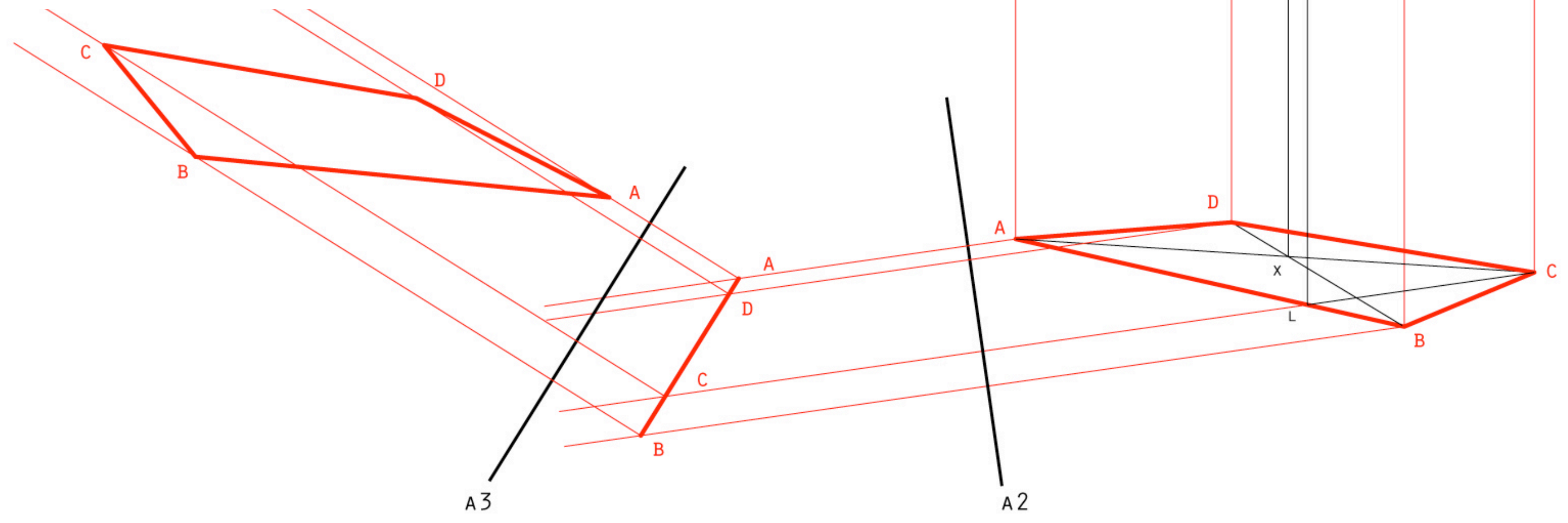
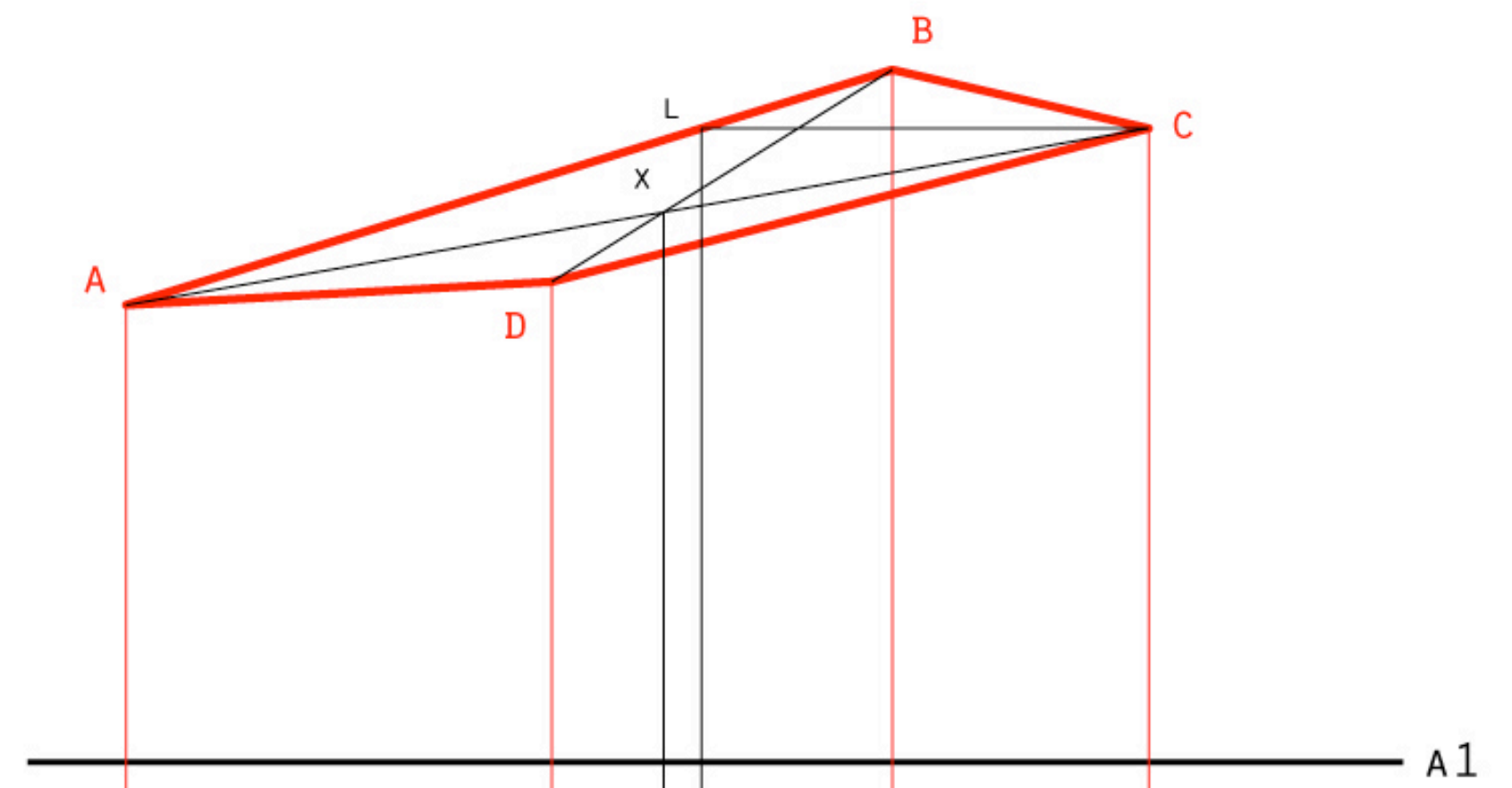
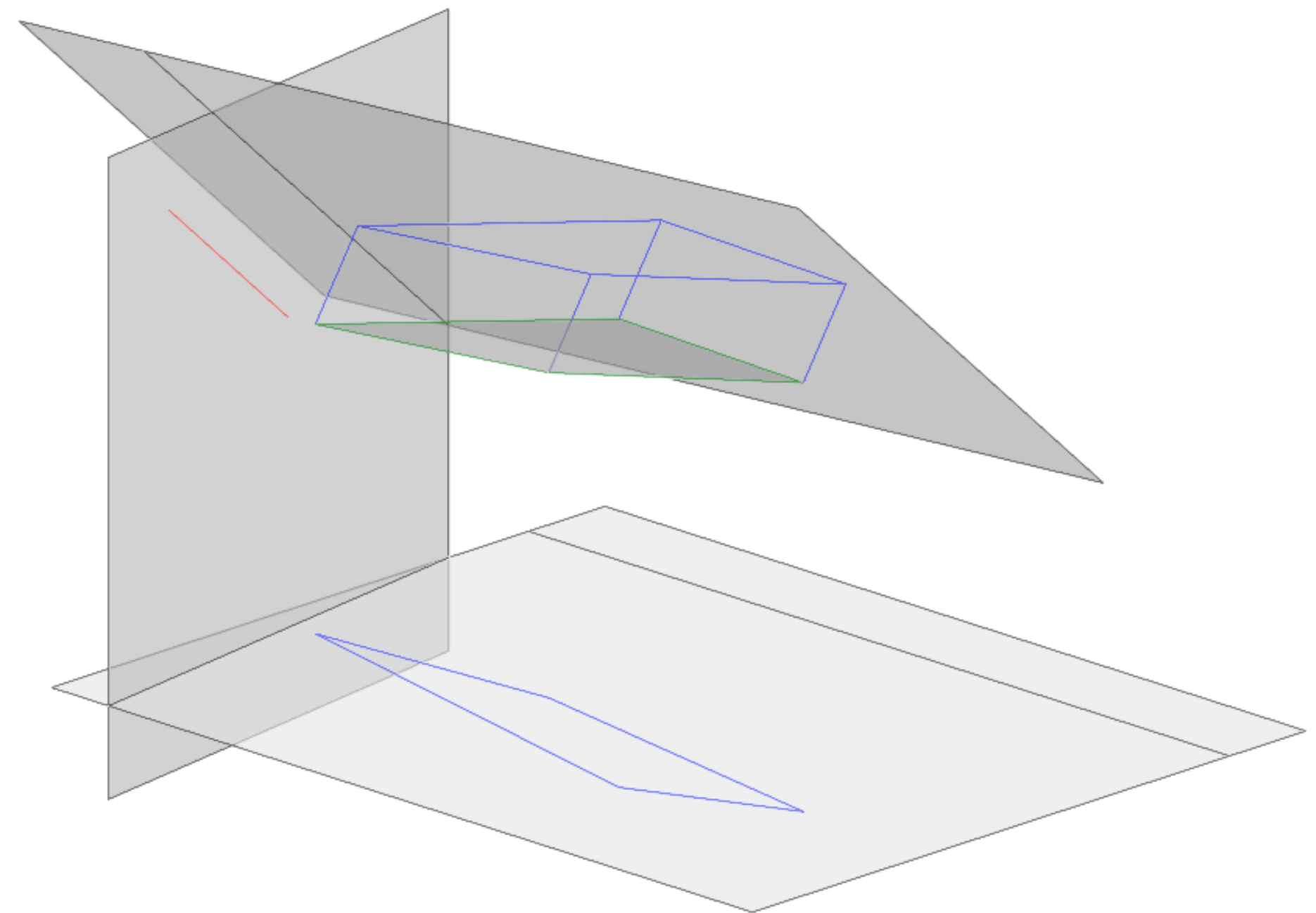
TRANSFER TRACES TO NEW PROJECTION PLANE

AGAIN TRANSFER MEASUREMENTS FROM THE PREVIOUS PROJECTION USING A DIVIDER



THE COMPLETE FIGURE IS THE TRUE SHAPE OF THE OBLIQUE

THE TRUE SHAPE IS THE ONLY CUT PIECE THAT CAN BE ORIENTED TO FORM THE PLANE FIGURE DESCRIBED

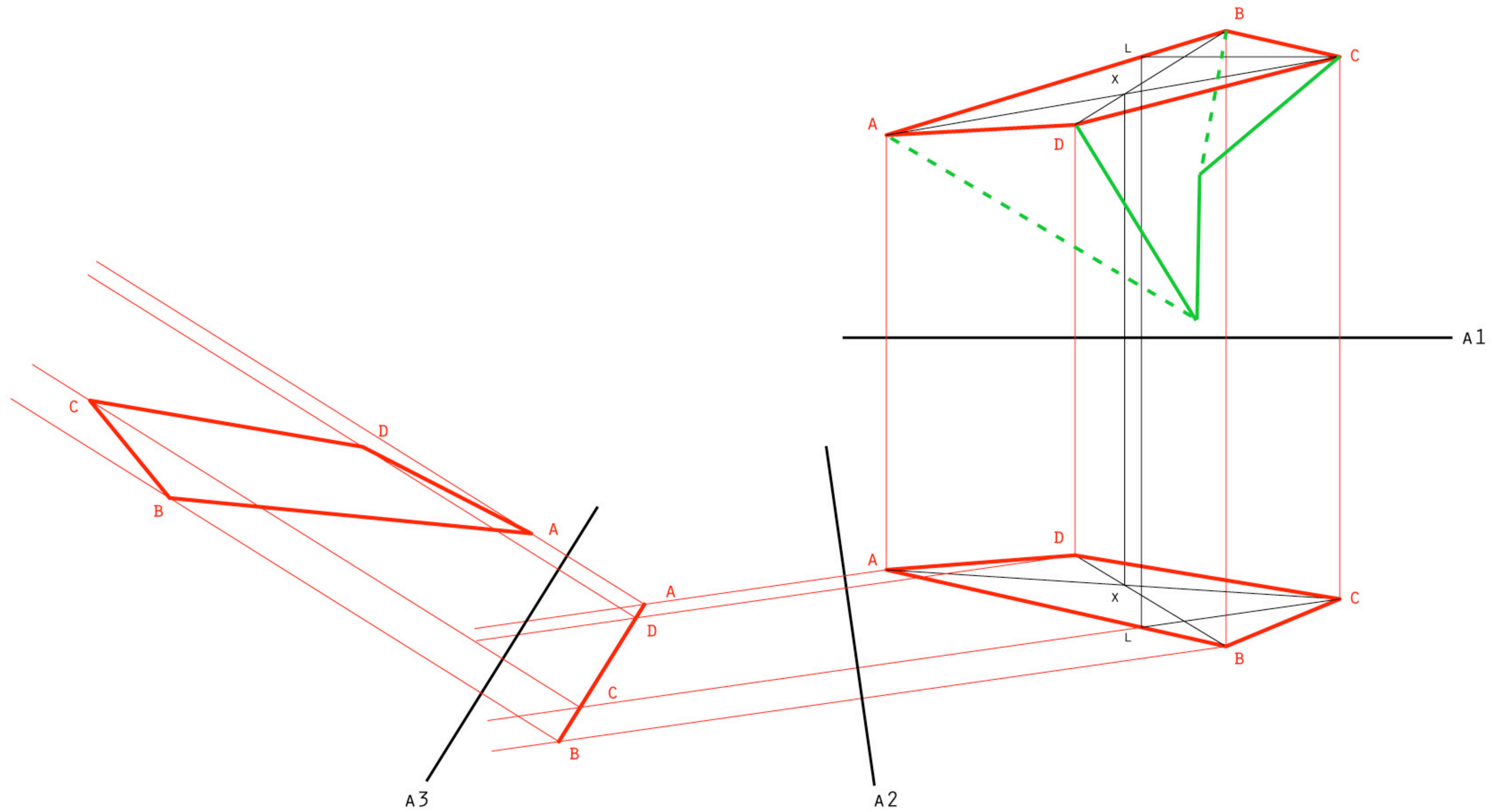


REPEAT THIS PROCESS FOR 3 ADJOINING FACES

START ON ONE EDGE IN THE ORIGINAL PROJECTION, ADD 2 NEW TRACES, AND DESCRIBE A NEW QUADRILATERAL PLANE FIGURE.

REPEAT ALL PROCESSES NECESSARY TO FULLY DEFINE THIS SECOND PLANE AND FIND ITS TRUE SHAPE.

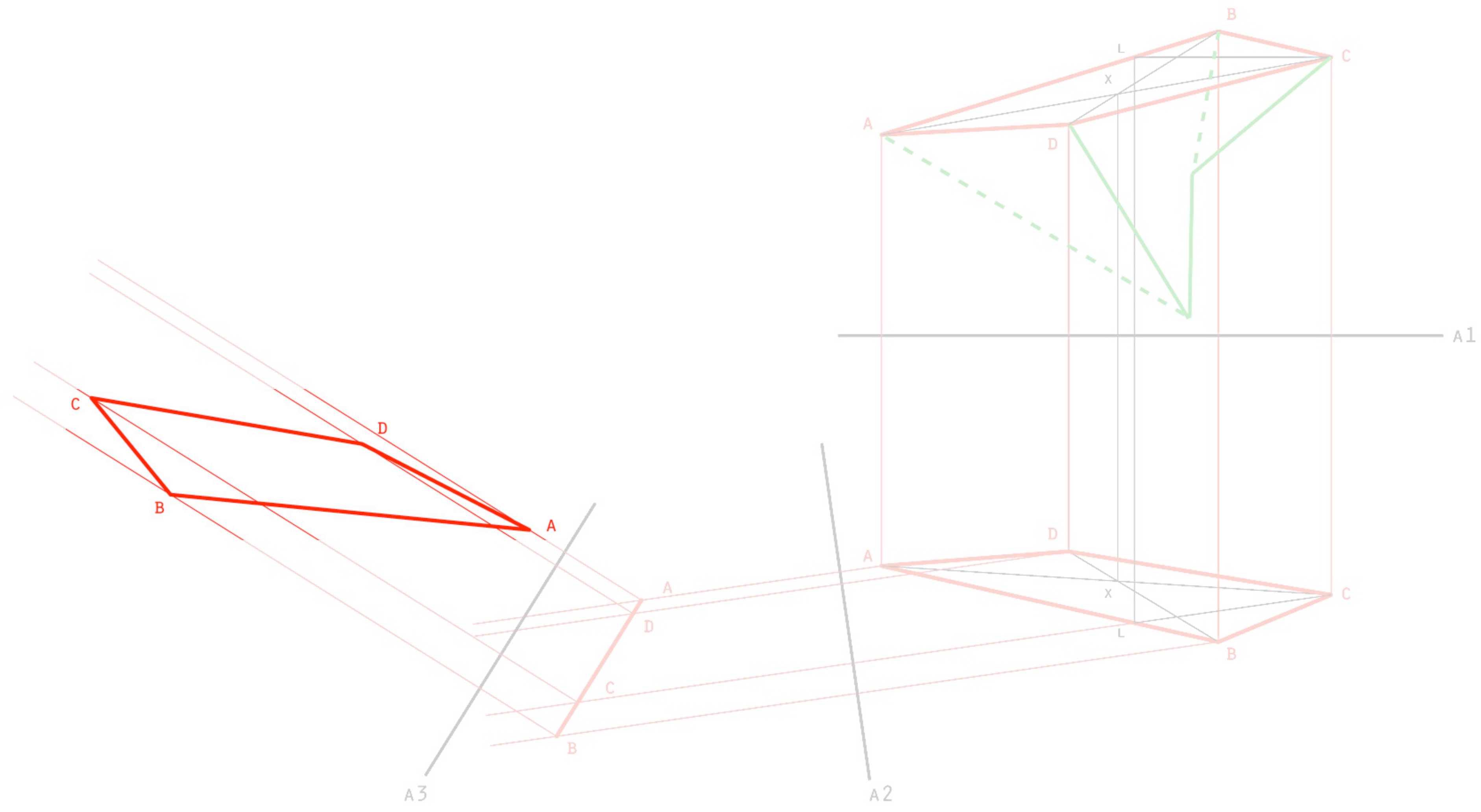
ADD 2 MORE QUADRILATERAL PLANES TO THE OPEN VERTICES TO CLOSE THE OVERALL FIGURE.



BUILD A MODEL OF THE COMPLETED FORM

USING THE TRUE SHAPES OF ALL 4 FACES (COPIED, AND SCALED IF NECESSARY), CONSTRUCT THE OBJECT FROM BRISTOL BOARD

MAKE MARKING TO INDICATE THE ORIENTATION OF THE MODEL IN RELATION TO THE DRAWING.



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Fall 2012

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