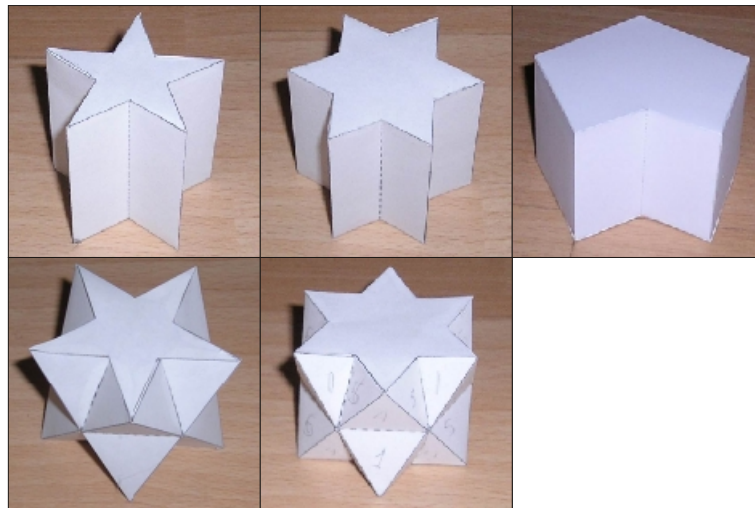


# Paper Models of Concave Prisms and Antiprisms

Gijs Korthals Altes



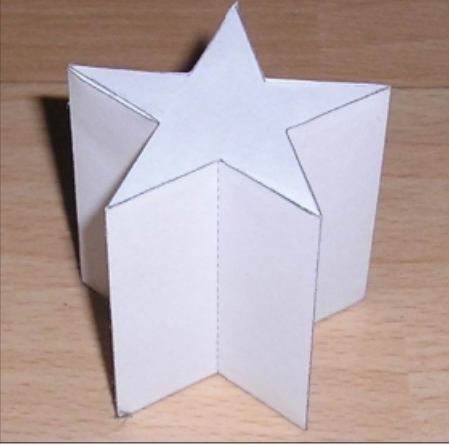
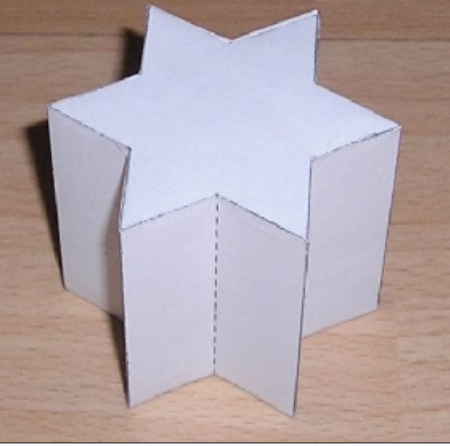
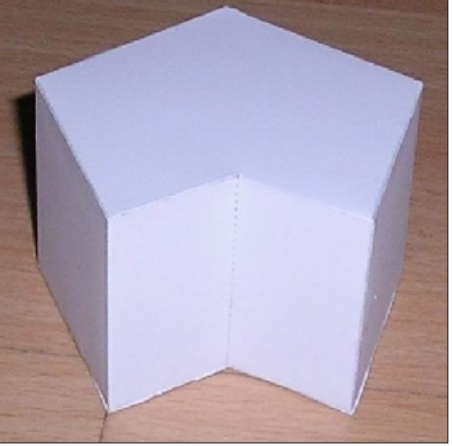
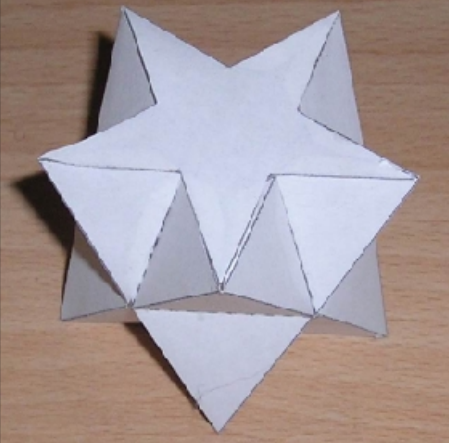
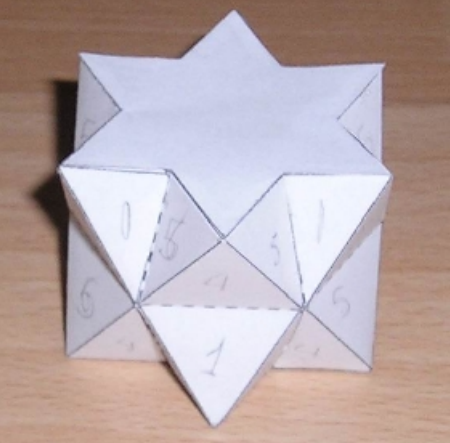
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<p><b>Pentagrammic Prism</b>  Faces: 7 Edges: 15 Vertices: 10</p>	<p><b>Hexagrammic Prism</b>  Faces: 8 Edges: 18 Vertices: 12</p>	<p><b>Hexagonal Prism</b>  Faces: 8 Edges: 18 Vertices: 12</p>
		
<p><b>Pentagrammic Antiprism</b>  Faces: 12 Edges: 20 Vertices: 10</p>	<p><b>Hexagrammic Antiprism</b>  Faces: 14 Edges: 24 Vertices: 12</p>	
		

## Prism:

A general prism is a polyhedron possessing two congruent polygonal faces and with all remaining faces parallelograms.

A right prism is a prism in which the top and bottom polygons lie on top of each other so that the vertical polygons connecting their sides are not only parallelograms, but rectangles. A prism that is not a right prism is known as an oblique prism. If, in addition, the upper and lower bases are rectangles, then the prism is known as a cuboid.

A polygon is a two dimensional figure made up of line segments called edges, that are connected two at a time at their endpoints. In a polyhedron, several polygonal faces meet at a corner (vertex).

## Antiprism:

In geometry, an  $n$ -sided antiprism is a polyhedron composed of two parallel copies of some particular  $n$ -sided polygon, connected by an alternating band of triangles. Antiprisms are a subclass of the prismaticoids.

Antiprisms are similar to prisms except the bases are twisted relative to each other, and that the side faces are triangles, rather than quadrilaterals.

In the case of a regular  $n$ -sided base, one usually considers the case where its copy is twisted by an angle  $180^\circ/n$ . Extra regularity is obtained by the line connecting the base centers being perpendicular to the base planes, making it a right antiprism. It has, apart from the base faces,  $2n$  isosceles triangles as faces.\*

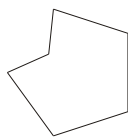
A polyhedron (plural: polyhedra) is a three - dimensional figure made up of sides called faces, each face being a polygon.

A polygon is a two dimensional figure made up of line segments called edges, that are connected two at a time at their endpoints. In a polyhedron, several polygonal faces meet at a corner (vertex).

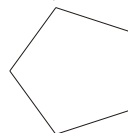
A polygon is convex if it contains all the line segments connecting any pair of its points.

A concave polygon is a polygon that is not convex. A polygon is concave if at least one of its internal angles is greater than  $180^\circ$ .

Concave polygon:



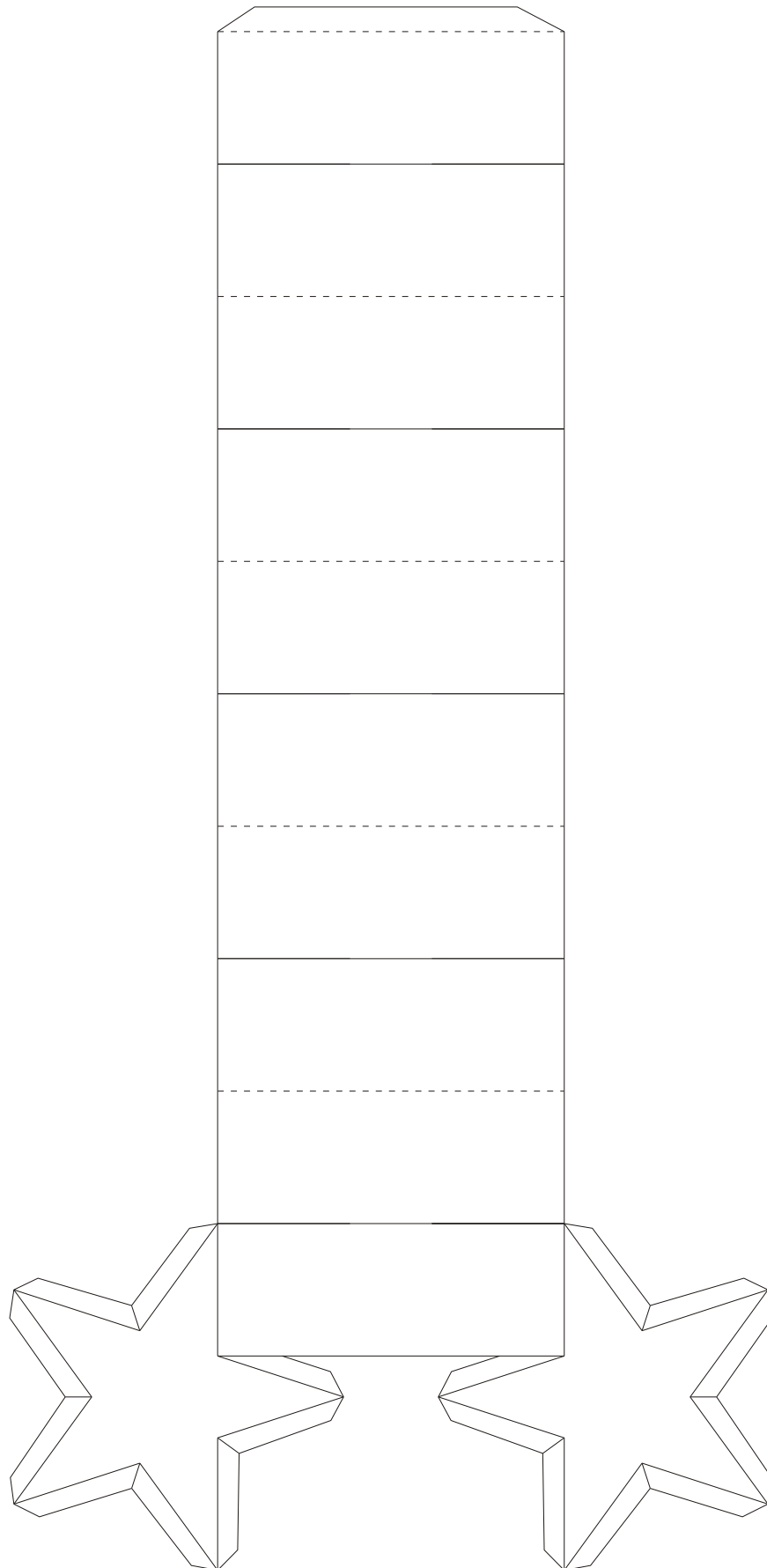
Convex polygon:



\*) source: <http://en.wikipedia.org/wiki/Antiprism>

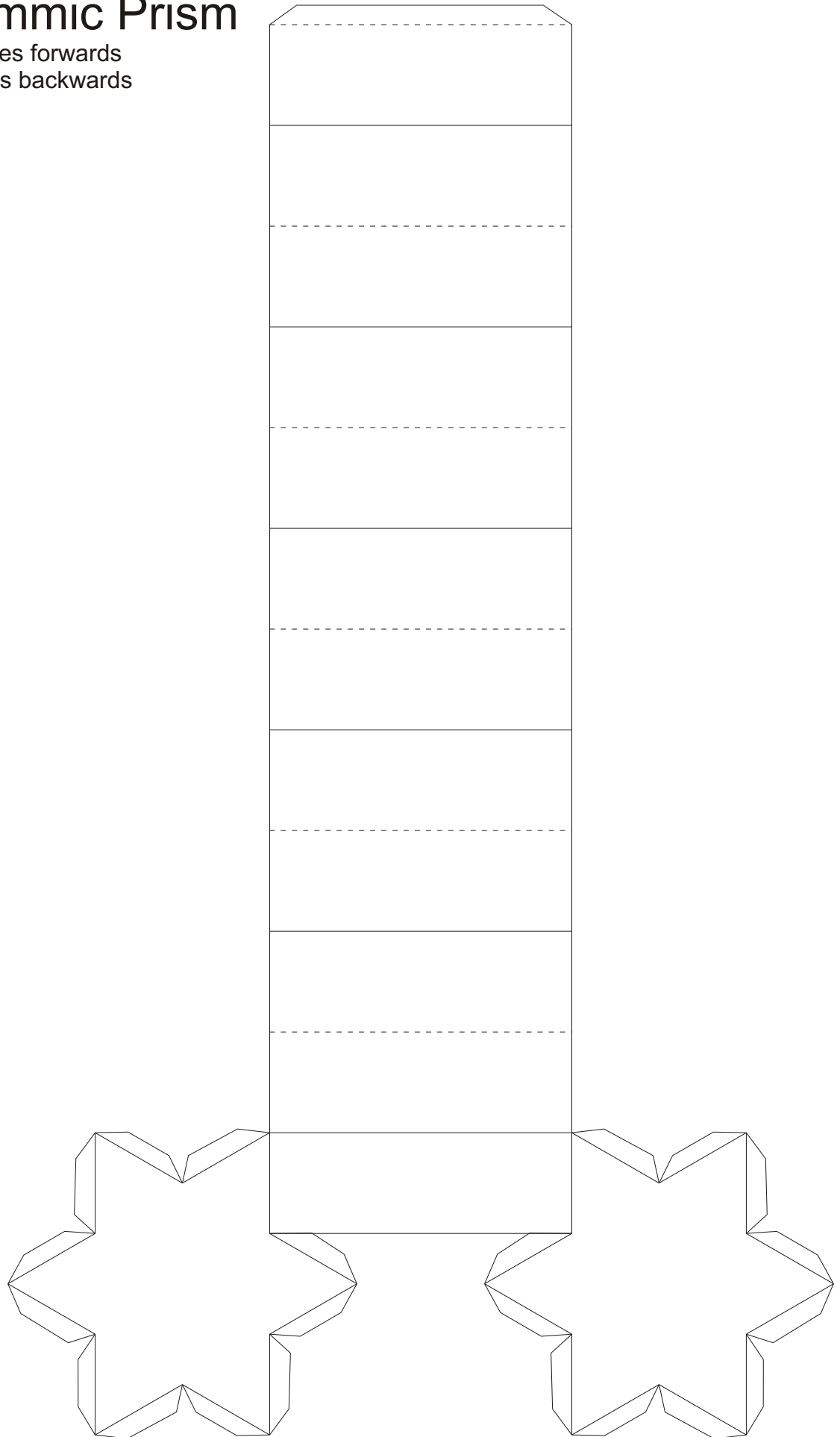
# Pentagrammic Prism

Fold the dotted lines forwards  
Fold the other lines backwards

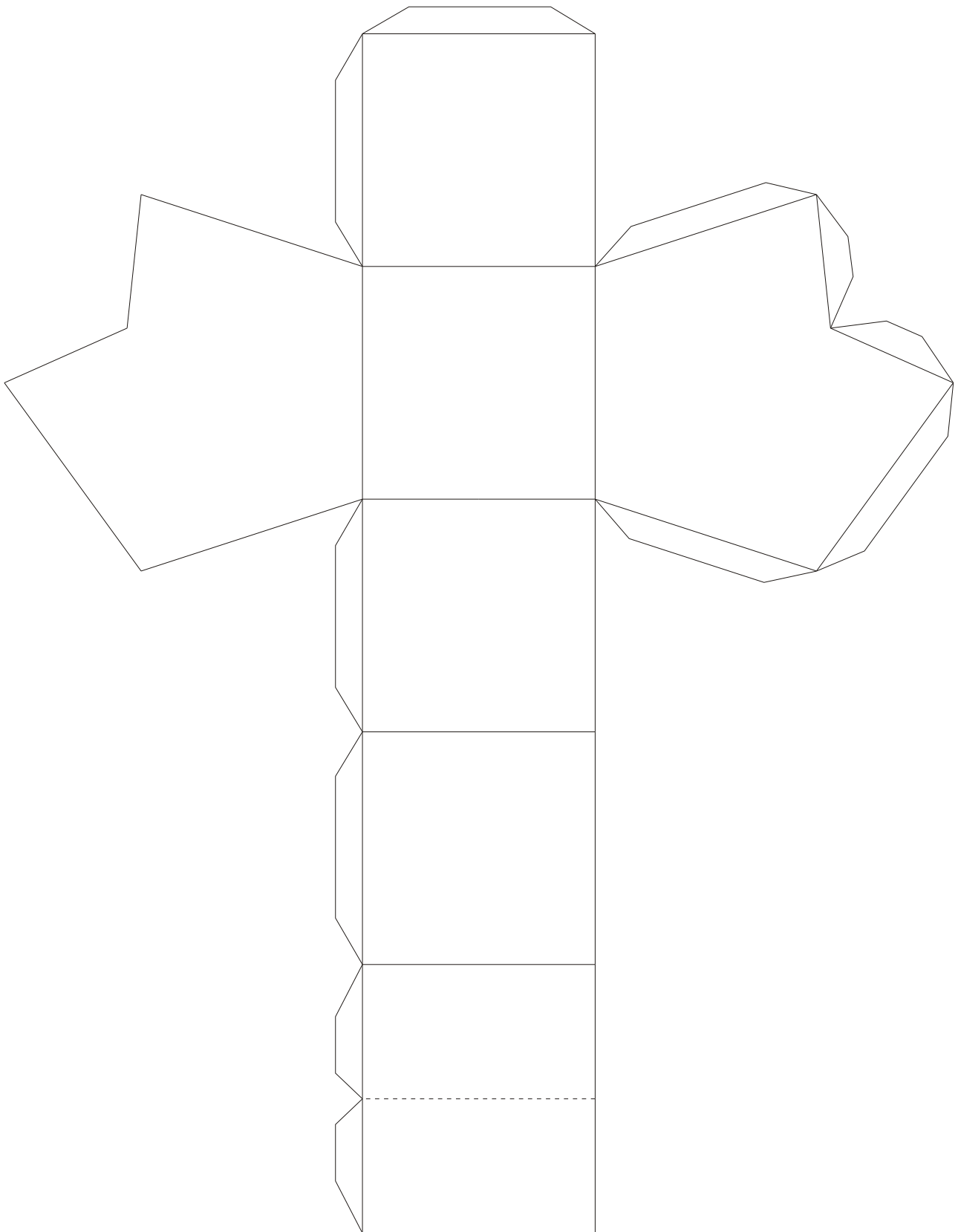


# Hexagrammic Prism

Fold the dotted lines forwards  
Fold the other lines backwards



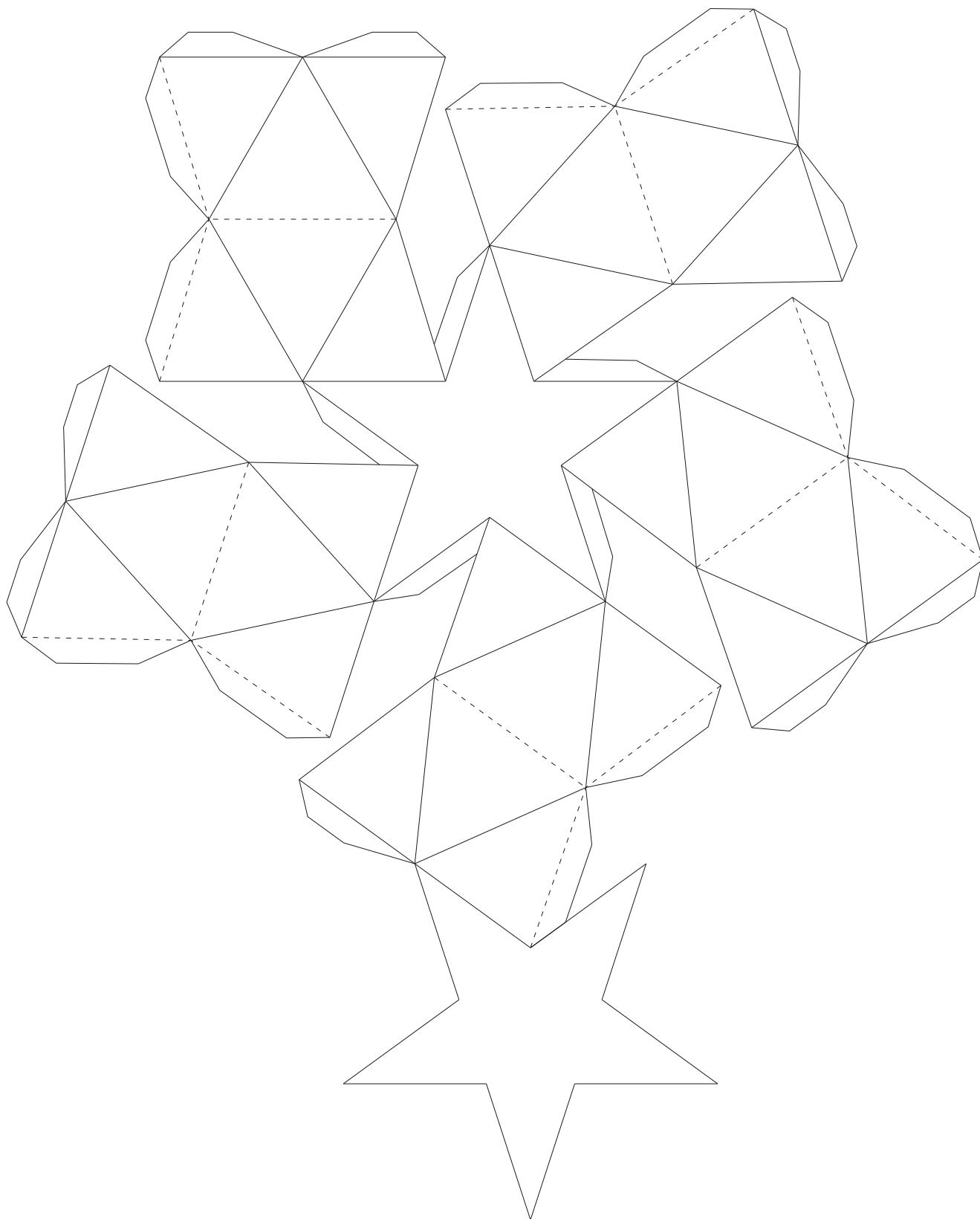
# Concave Hexagonal Prism



# Pentagrammic Antiprism

Fold the dotted lines forwards

Fold the other lines backwards





# Hexagrammic Antiprism

Fold the dotted lines forwards  
Fold the other lines backwards

