Computer Aided Drawing (CAD)
A8302
Projection of Solids

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Outline

INTRODUCTION

The three-dimensional objects called solids. solids have length, breadth and thickness. However,only those solids are considered the shape of which can be defined geometrically and are regular in nature

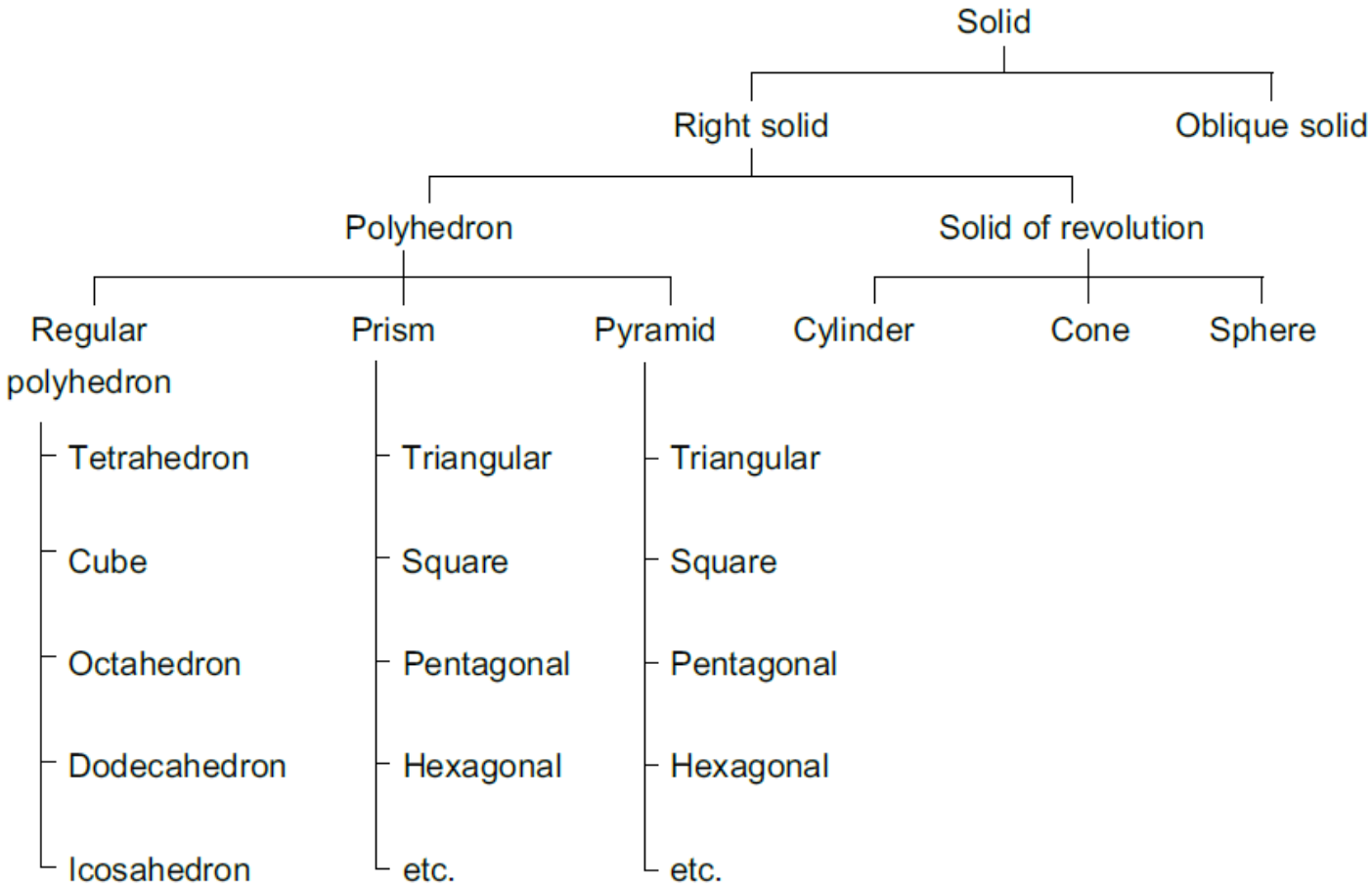

Figure: Classification of regular Solids

ORIENTATION OF SOLIDS

The solid may be in one of the following positions:

1. Axis perpendicular to the H.P.

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3. Axis parallel to both the H.P. and the V.P. (i.e., perpendicular to the profile plane)

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6. Axis inclined to both the H.P. and the V.P.

AXIS PERPENDICULAR TO H.P.

1. A square pyramid of base side 40 mm and axis 60 mm is resting on its base on the H.P. Draw its projections when (a) a side of the base is parallel to the V.P., (b) a side of the base is inclined at 30^0 to the V.P., (c) all the sides of the base are equally inclined to the V.P.

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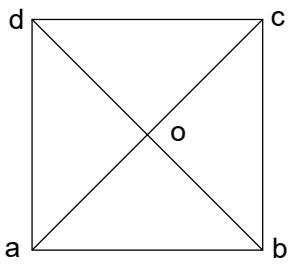
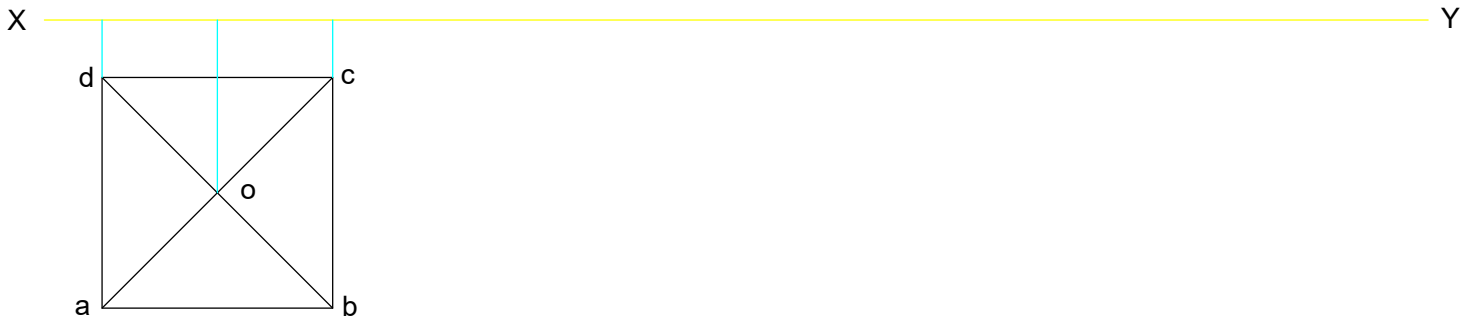
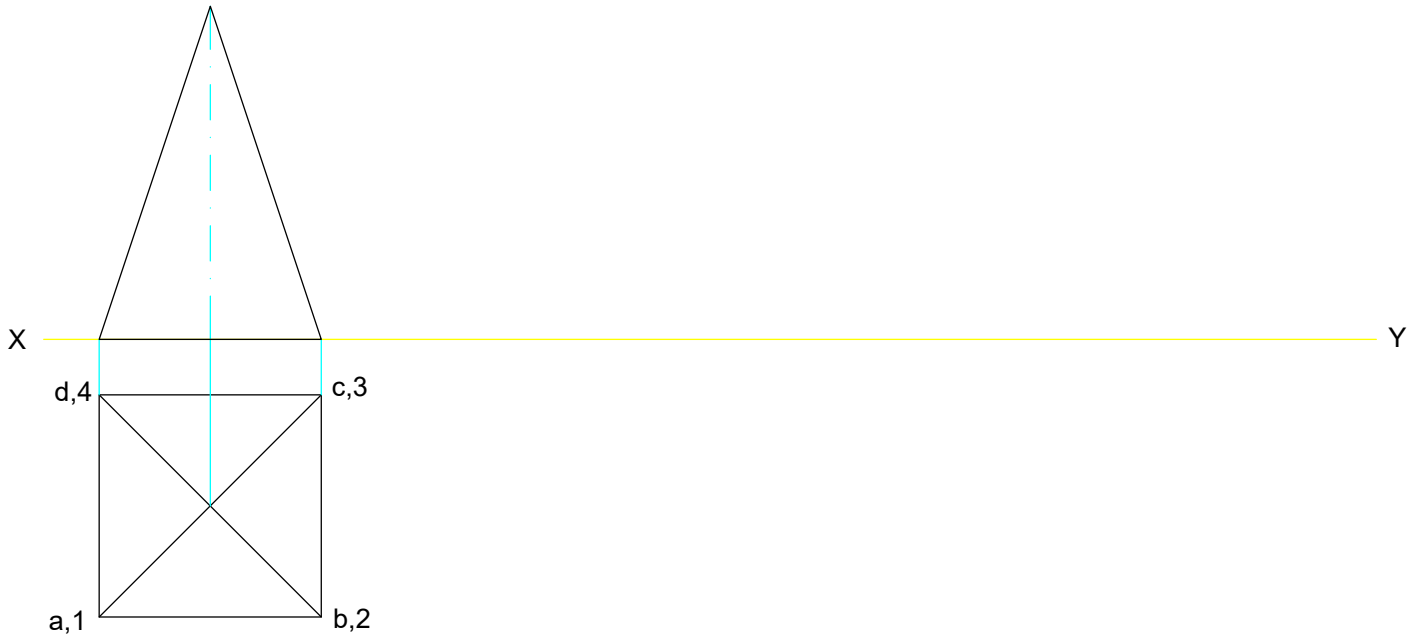
X
Y

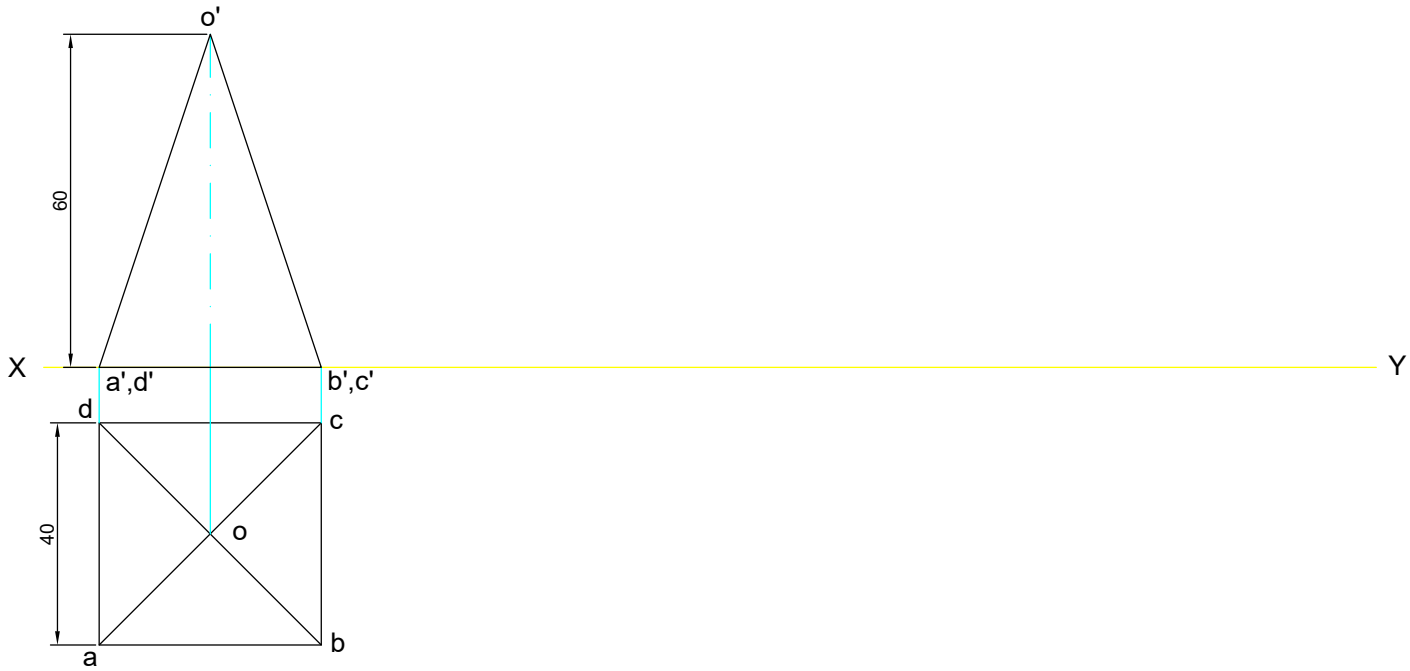
X Y

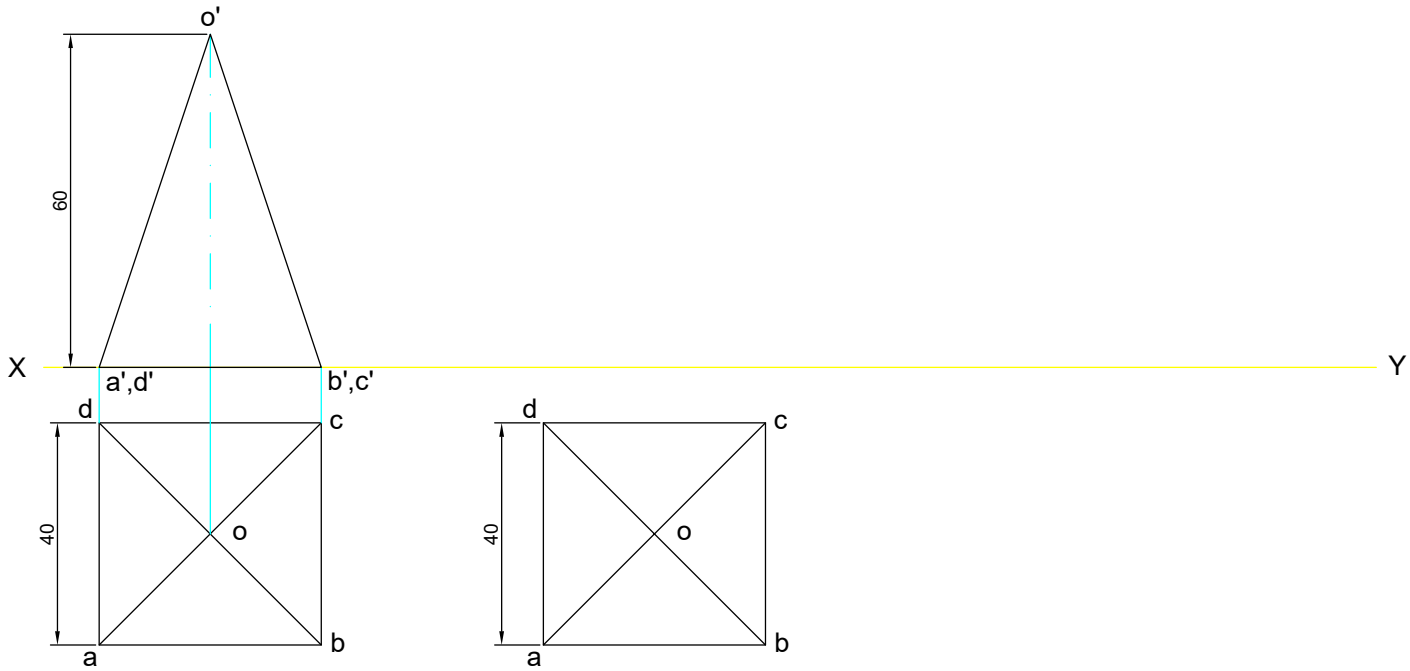



X
Y
d
c
o
a
b


X
Y
d,4
c,3
a,1
b,2


o'
X
Y
a',d'
b',c'
d
c
o
a
b


o'
60
X
Y
a',d'
b',c'
d
c
40
o
a
b


o'
60
X
Y
a',d'
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d
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40
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b
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40
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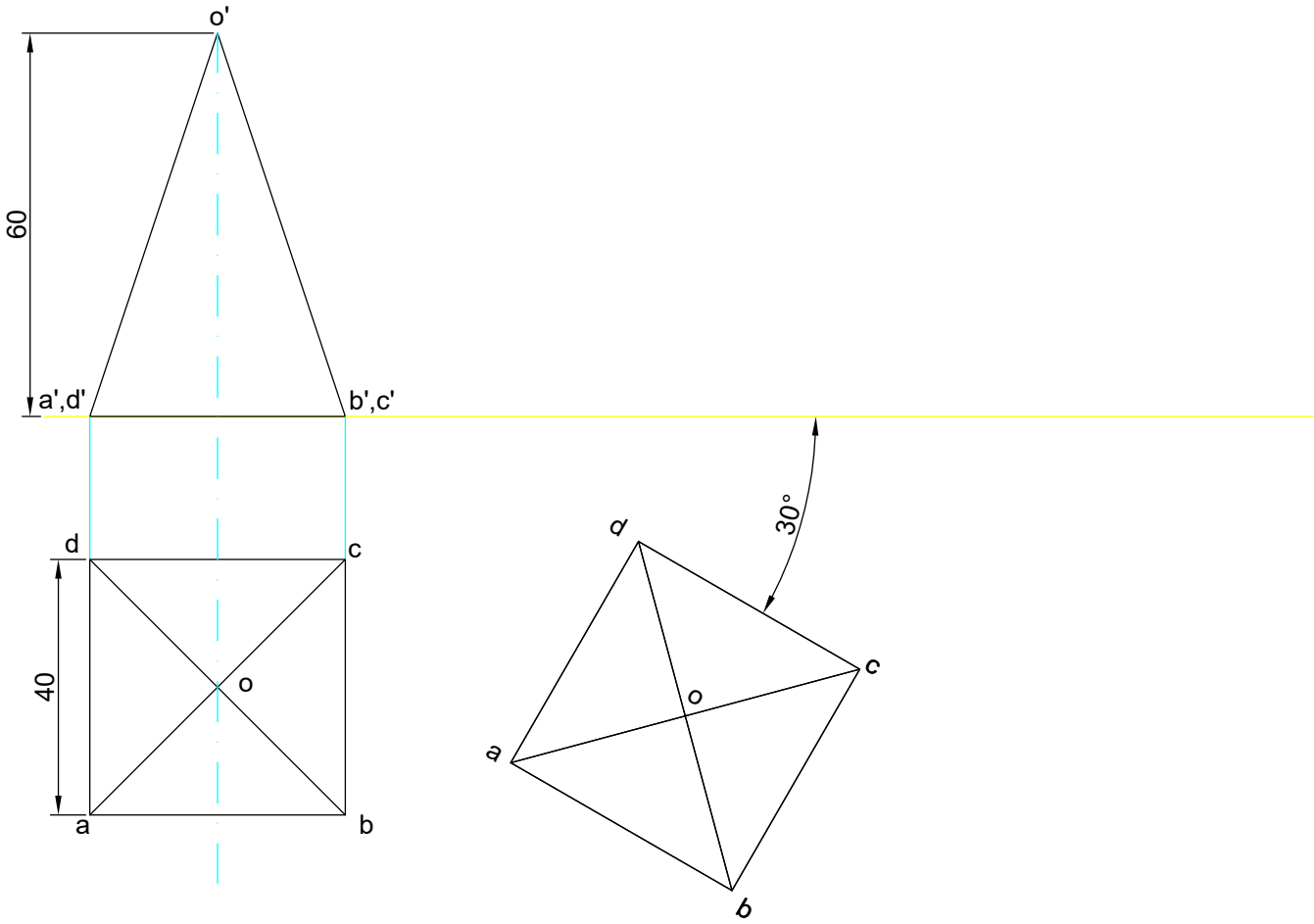
b


o'
60
a',d'
b',c'
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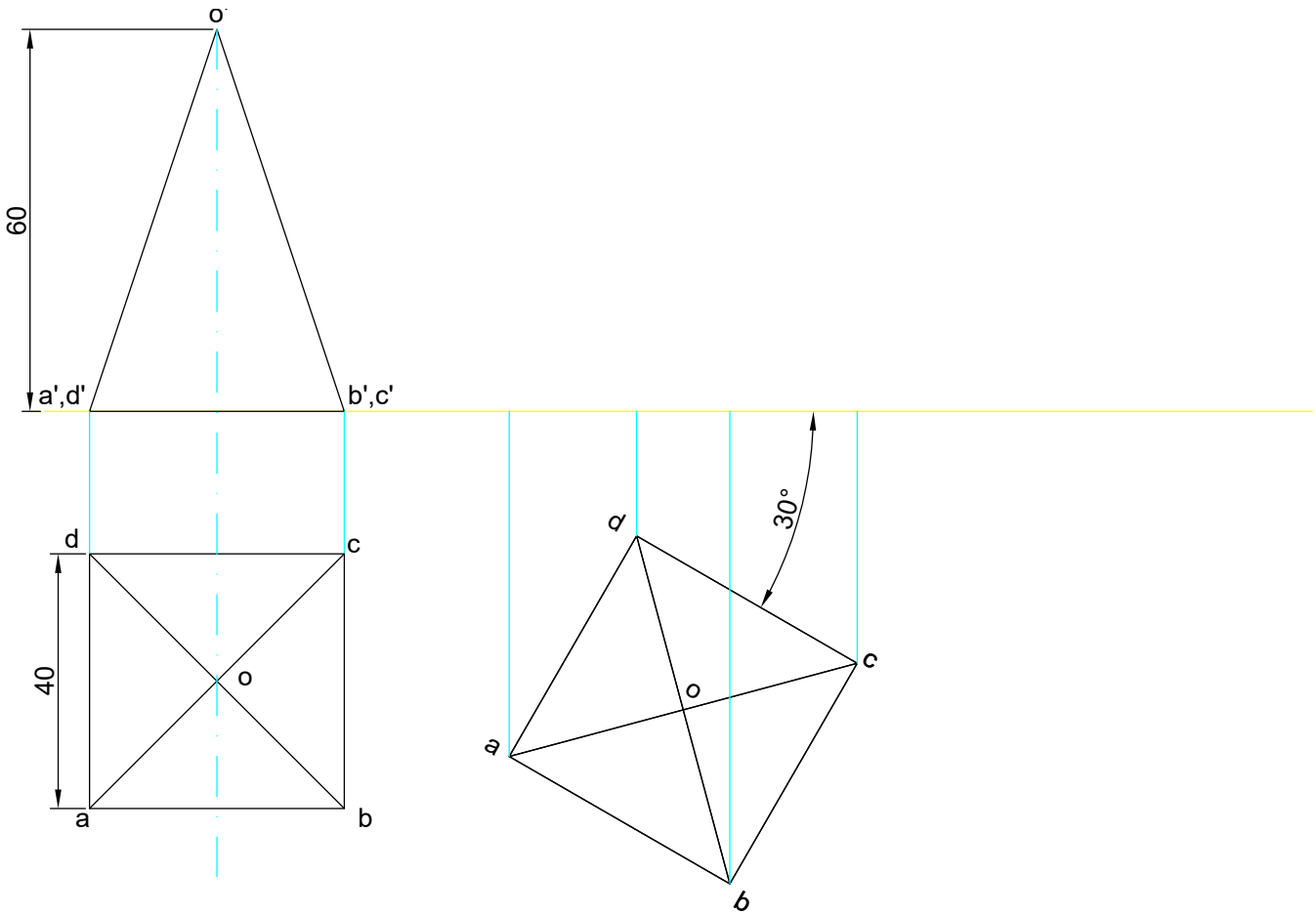
o'
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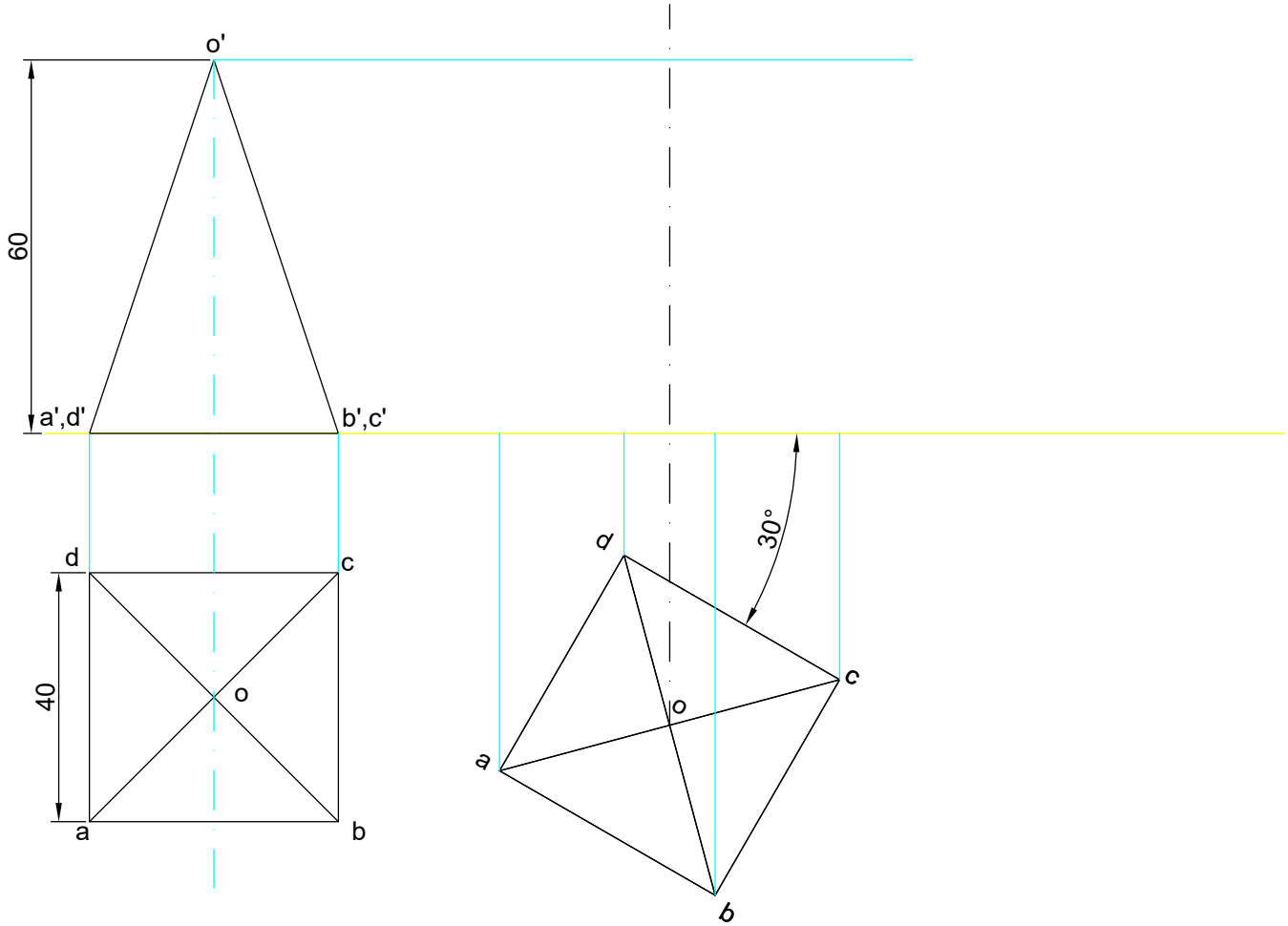
o'
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a',d'
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b
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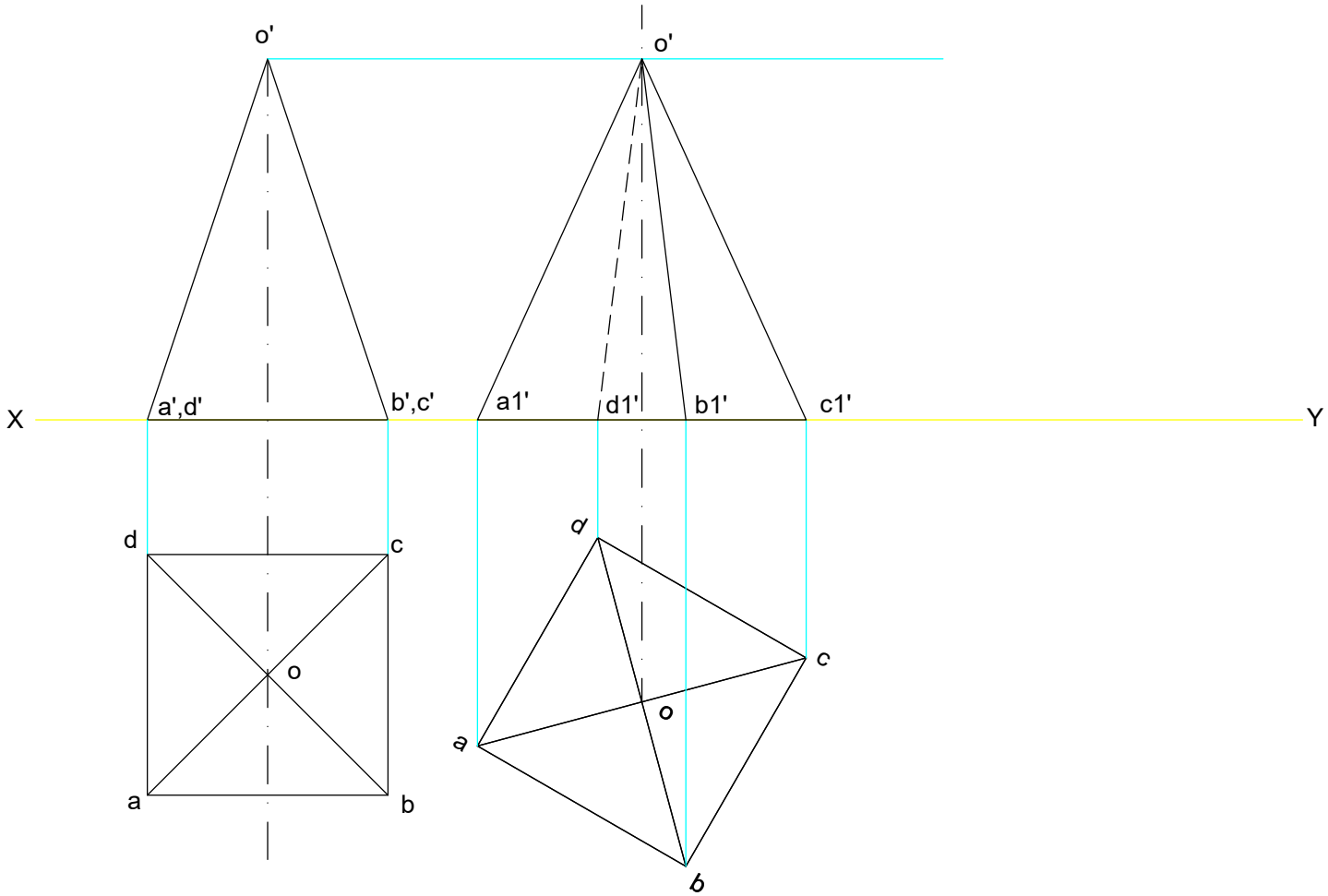
b


o'
o'
X
a',d'
b',c'
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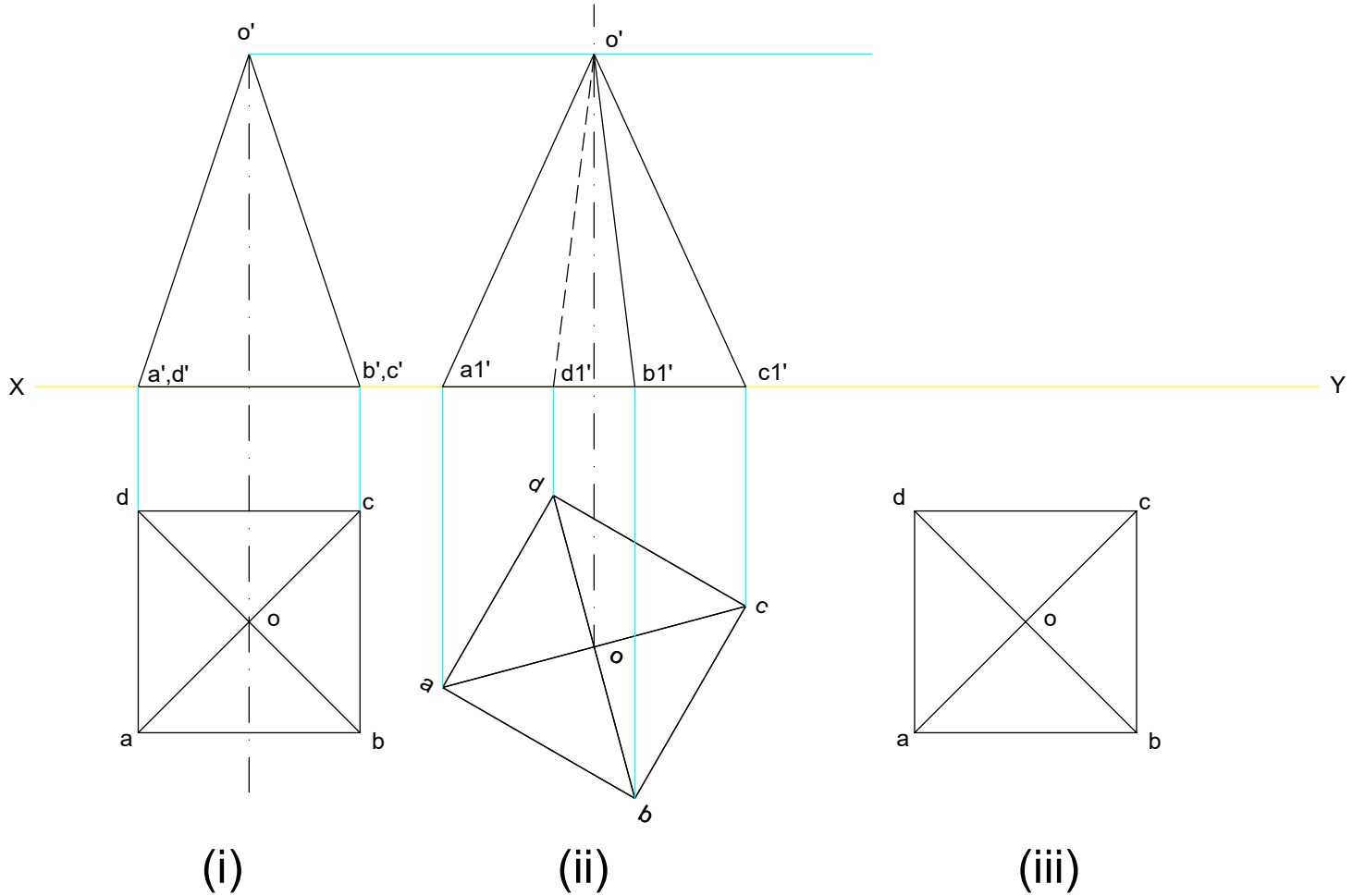
d1'
b1'
c1'
Y
d
c
o
a
b
d'
c'
o'
a'
b'


o'
a',d'
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b
(i)
o'
a1'
d1'
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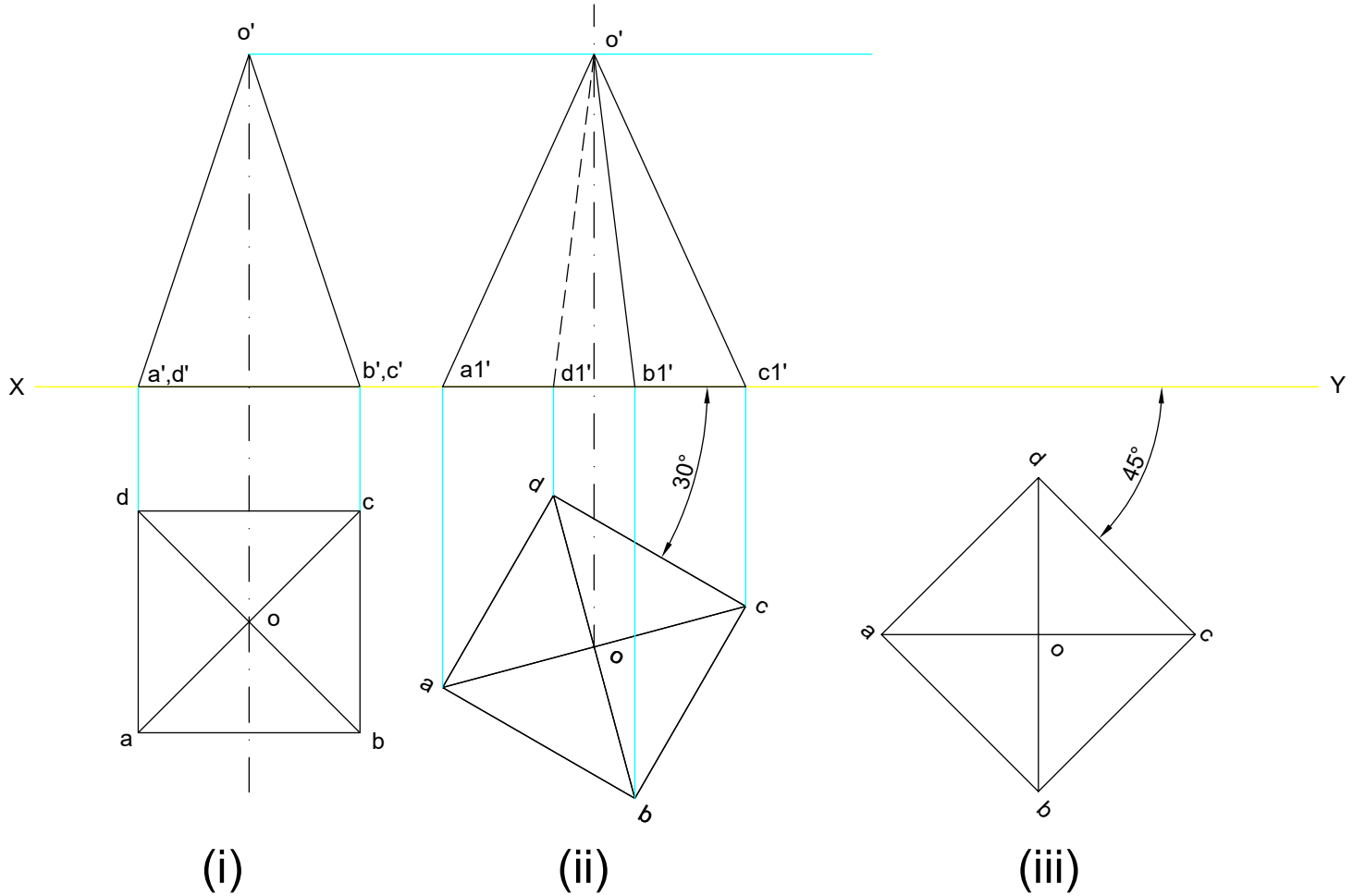
(ii)
d
c
o
a
b
(iii)


o'
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b',c'
X
Y
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(i)
o'
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b1'
c1'
30°
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c
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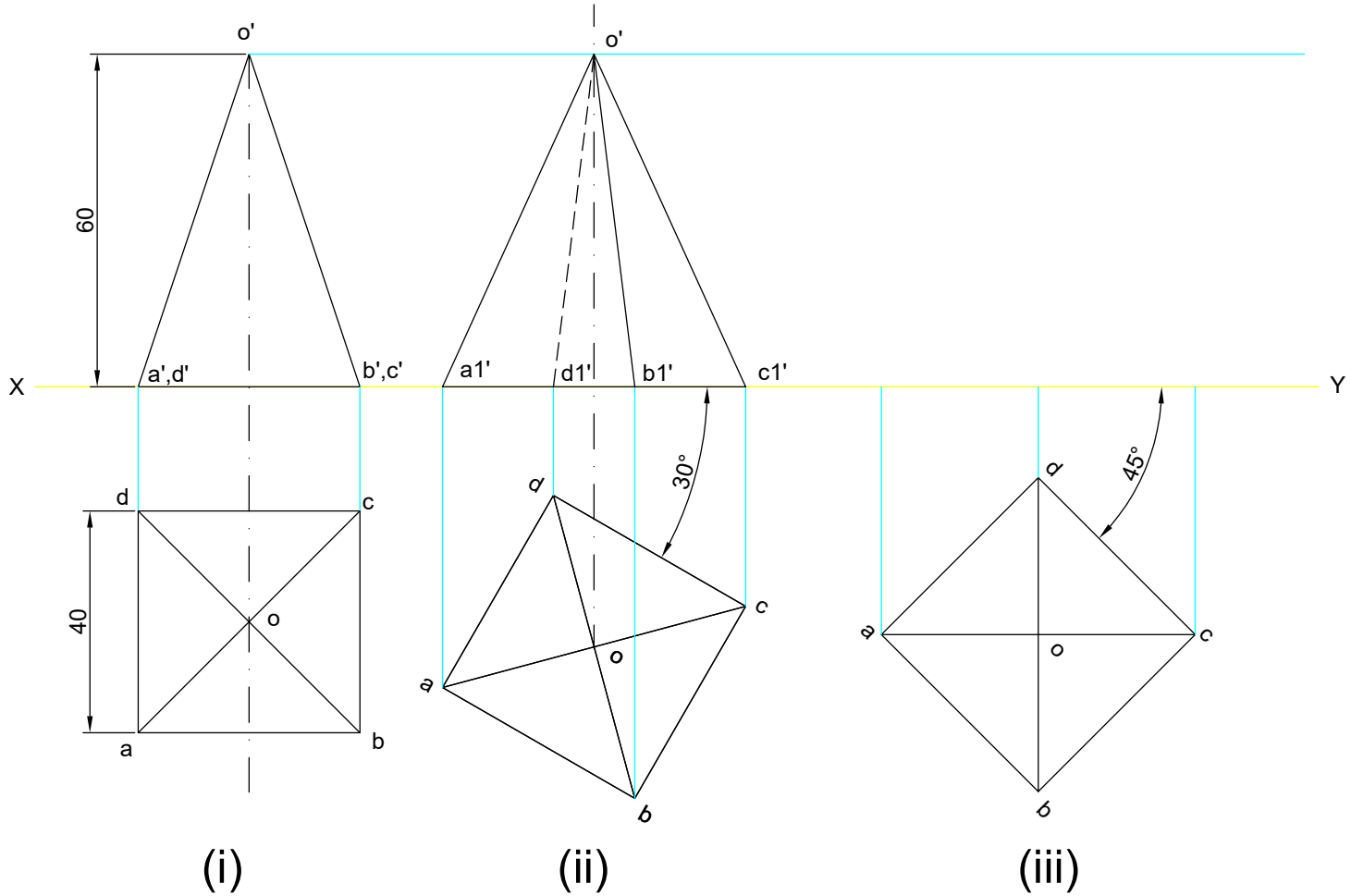
a
b
(ii)
45°
d
c
o
a
b
(iii)


o'
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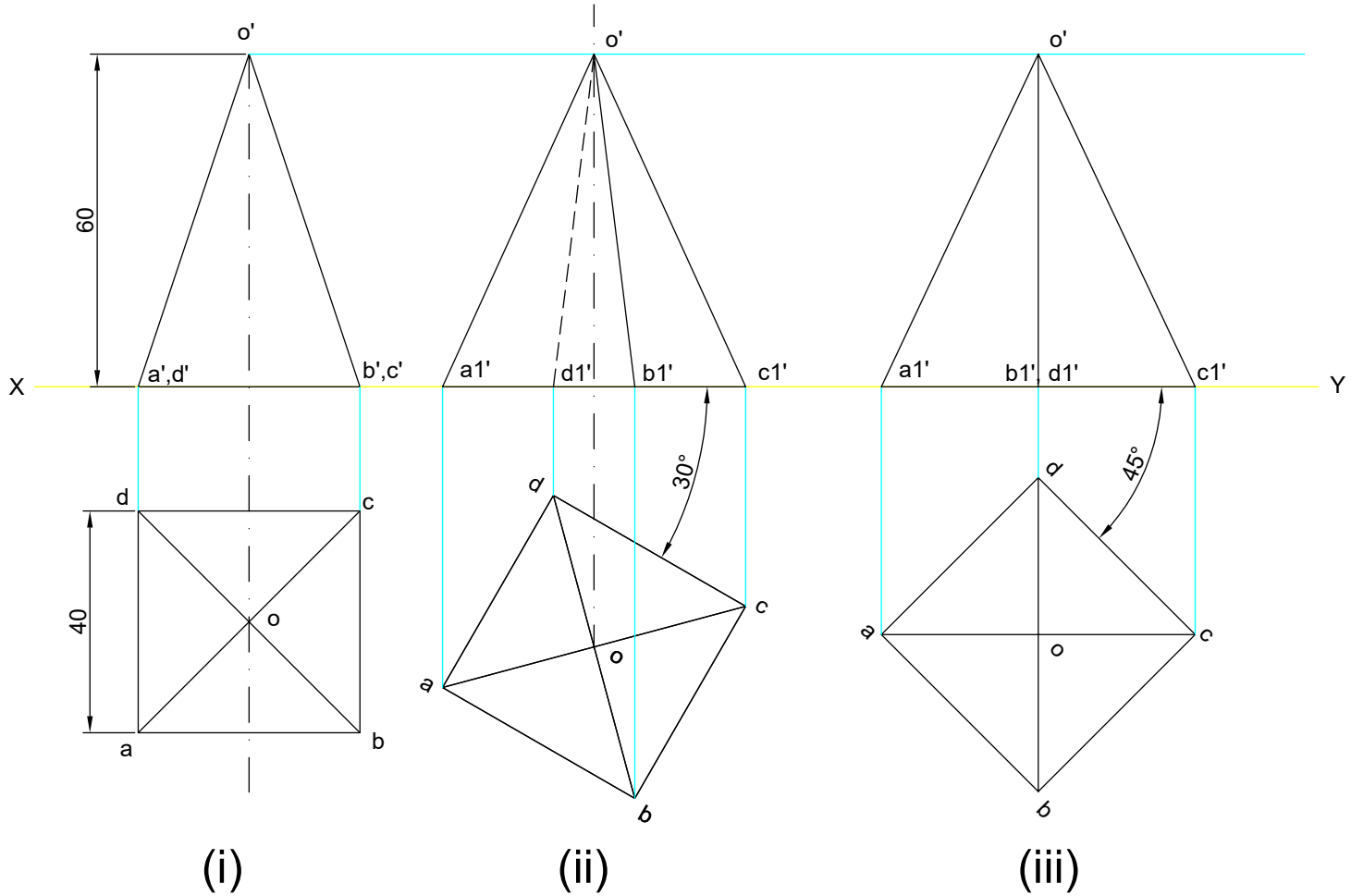
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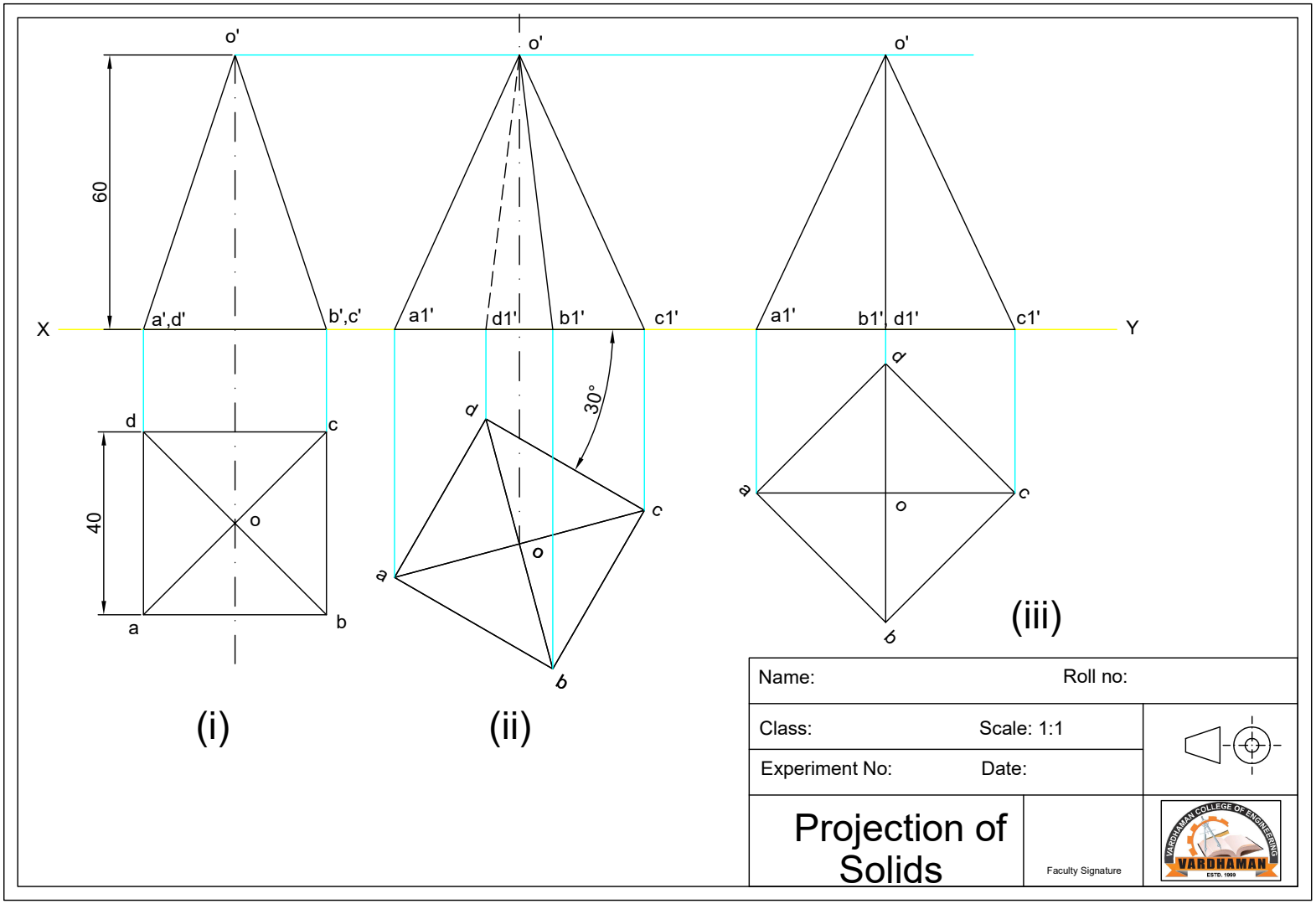
(iii)


o'
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b',c'
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b
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a1'
d1'
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c1'
30°
d
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o
a
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(ii)
o'
a1'
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Y
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o
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(iii)
Name:
Roll no:
Class:
Scale: 1:1
Experiment No:
Date:
Projection of Solids
Faculty Signature

2. A square prism of base side 40 mm and axis 60 mm is resting on its base on the ground. Draw its projections when (a) a face is perpendicular to the V.P., (b) a face is inclined at 30^0 to the V.P., (c) all the faces are equally inclined to the V.P.

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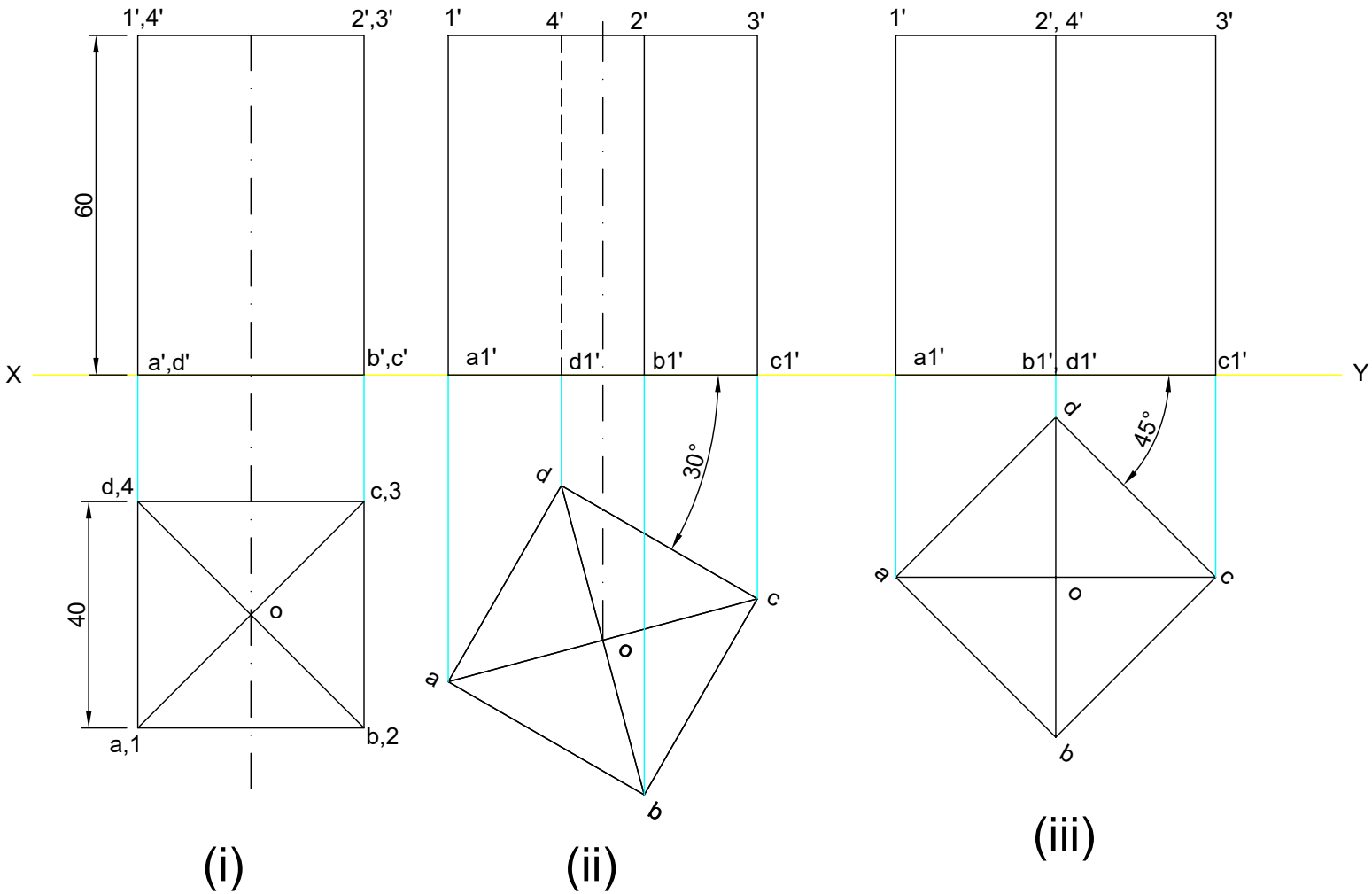

Exercise Problems for Practice

1. A pentagonal prism of base side 30 mm and axis 60 mm has one of its bases in the V.P. Draw its projections when (a) a rectangular face is parallel to and 15 mm above the H.P., (b) a face is perpendicular to the H.P., (c) a face is inclined at 45^0 to the H.P.

2. A pentagonal prism of base side 30 mm and axis 60 mm is resting on one of its rectangular faces on the H.P. with axis parallel to the V.P. Draw its projections.

3. A pentagonal prism of base edge 30 mm and axis 60 mm rests on an edge of its base in the H.P. Its axis is parallel to V.P. and inclined at 45^0 to the H.P. Draw its projections.

4. A hexagonal pyramid of base edge 30 mm and axis 60 mm, has a triangular face on the ground and the axis parallel to the V.P. Draw its projections.

5. A pentagonal pyramid of base side 30 mm and axis 55 mm has a triangular face in the V.P. and the base edge contained by that triangular face is perpendicular to the H.P. Draw its projections.

6. A cone of base diameter 50 mm and axis 60 mm has a generator in the V.P. and the axis parallel to the H.P. Draw its projections.

Experiment 10

1. A pentagonal prism of base side 30 mm and axis 60 mm is resting on one of its rectangular faces on the H.P. with axis parallel to the V.P. Draw its projections.

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