ISOMETRIC PROJECTION

LECTURE # 5
EDP CODE: 152007003
COURSE NAME: BASIC DRAFTING
ARCHITECT: NASEER ULLAH

Axonometric Projection

Axonometric projection is one of the most frequently used drawing types for creating three-dimensional images in architecture.

Isometric, dimetric and trimetric projections are types of axonometric drawings and together they form a group of drawing types called parallel projections or paraline drawings.

These are three-dimensional drawings, projected using orthographic projections as generators, where all parallel lines in the object remain parallel in the drawing.

Objects drawn in parallel projections do not appear to get smaller or larger as they recede, and line lengths remain dimensionally accurate.

ISOMETRIC PROJECTION

Isometric drawings are formed when an object is turned
so that all three axes meet the picture plane at the same angle,
making the angles between the edges of the Building or space 120
degrees.
An isometric drawing can be drawn at any scale and so best
illustrates the true projected size.

In architectural drawings one axis is usually vertical and the other
two are therefore at 30 degrees to the horizontal.
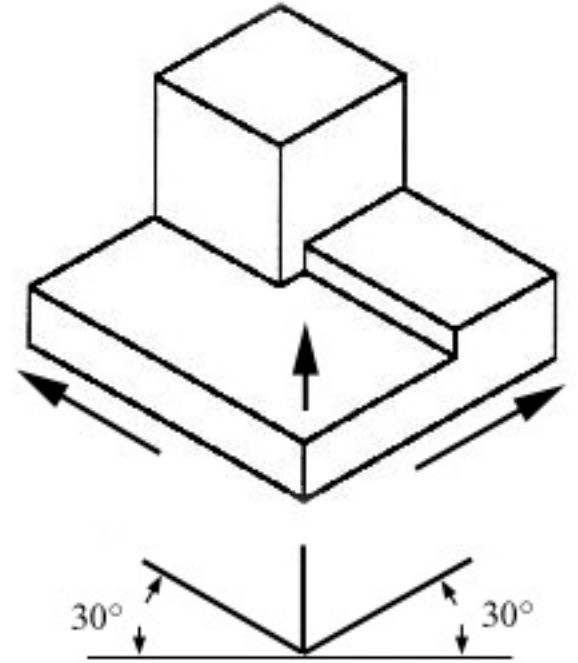
ISOMETRIC & PERSPECTIVE DRAWING

Perspective drawings mimic what the human eye perceives, so objects appear smaller the further away they are from the viewer.

In contrast, **isometric drawings** use parallel projection, which means objects remain at the same size, no matter how far away they are.
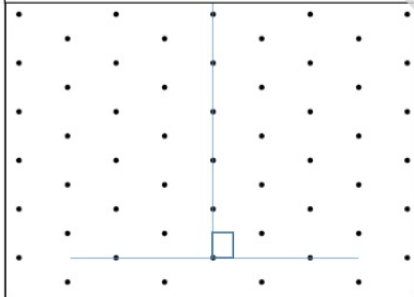

Perspective   Isometric
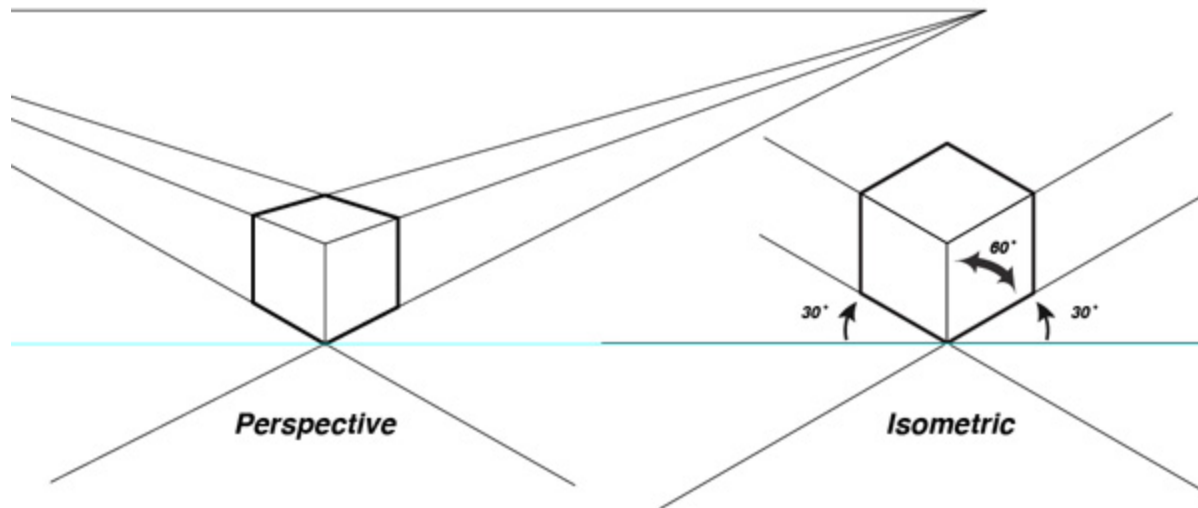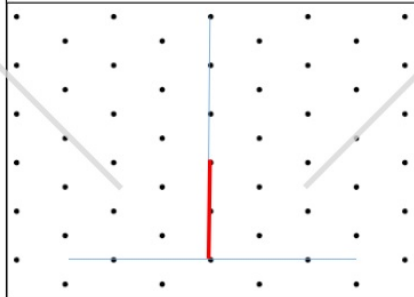
Isometric Projection

Key words: parallel   right angle   vertical   horizontal   diagonal   equal   isometric   edge
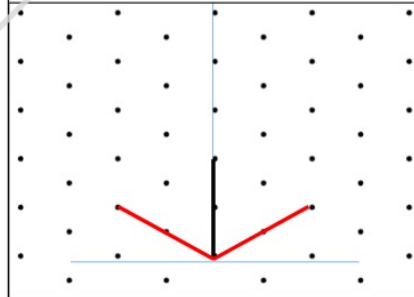
1. Draw a guide line vertical down the page centre of the page and horizontal across the page to form a right angle.
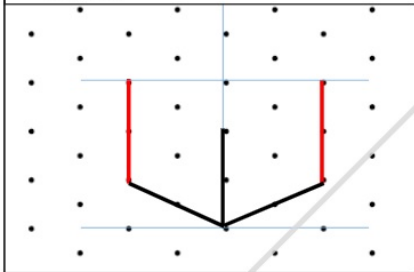
2. Draw the first vertical line of the cube on the centre guide to the length required.
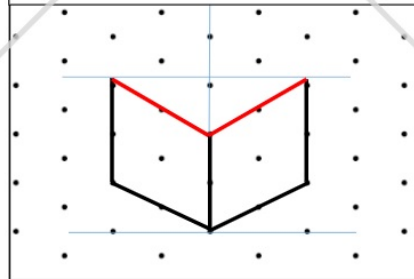
3. Add in the base lines of the cube at 30° angles to the horizontal guide line.
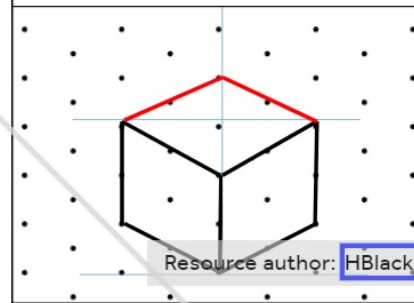
4. Create the side of the cube by drawing two vertical lines the same length as your centre line and parallel to the centre guide line.
5. Add in a new guide line across the top of the two new lines

6. To make the top front of the cube, draw two lines parallel to the two base line at 30° by connecting the centre line to the two sides.
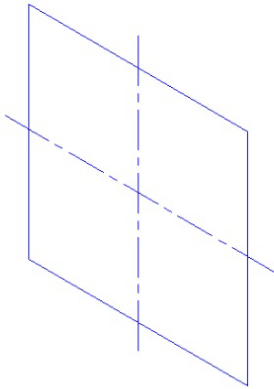
7. Add in the top back edges of the cube at 30° angles to the horizontal guide line.
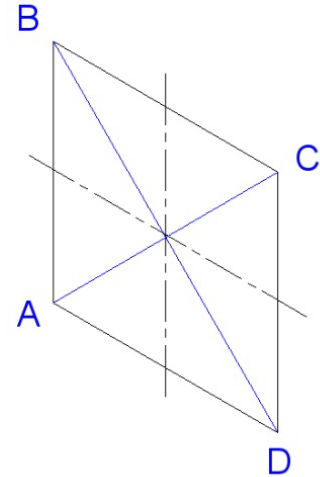
Resource author: HBlack000

Drawing the Isometric Square

Draw an Isometric Square with each side the same size as the diameter of the circle.

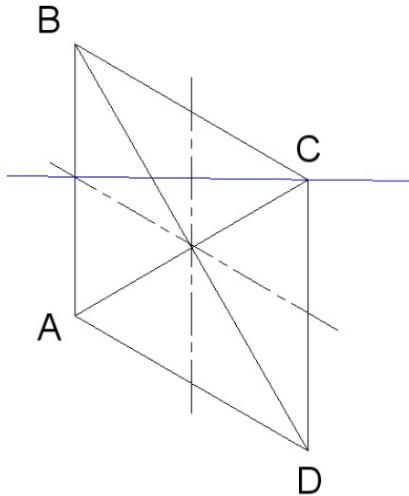Draw the horizontal and vertical centre lines.

Drawing the Isometric Square

Draw the diagonals of the square, as shown.

The corners are labelled to assist in the explanation of the drawing technique.
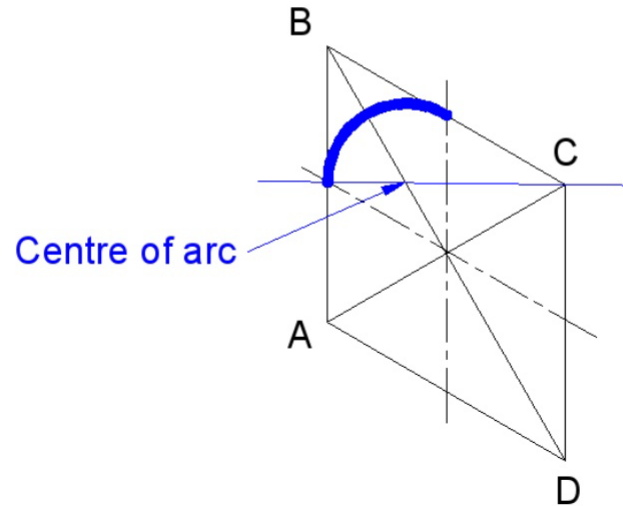
Drawing a Construction Line

Draw a straight line with a ruler or set square from the corner C to the mid point of AB.
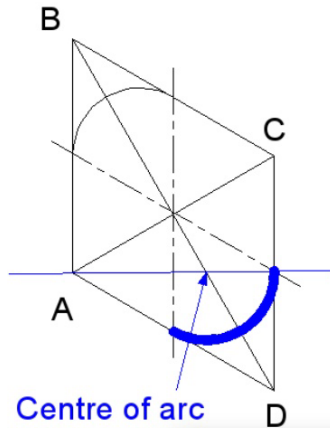
Drawing an Arc

Use the point of intersection of the line from C with the diagonal BD as the centre and draw the arc as shown with compasses.

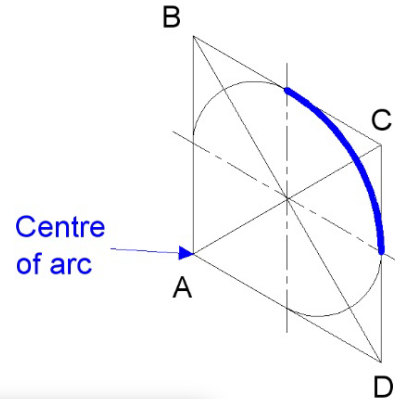Centre of arc

How to Draw an Isometric Circle

Drawing another Arc

Repeat using corner A and use the point of intersection of the line from A with the diagonal BD as the centre of an arc and draw as shown with compasses.

Drawing the Third Arc

Use the corner A as the centre of the arc and use your compasses to complete the third corner as shown.

Drawing the Fourth Arc

Use the corner C as the centre of the arc and use your compasses to complete the last corner as shown.
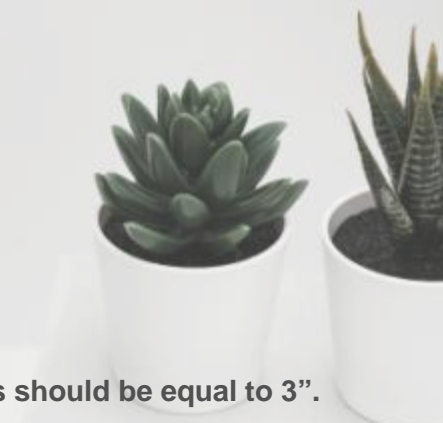
How to Draw an Isometric Cube Video link

https://www.youtube.com/watch?v=MHARXHaMMs4

How to Draw an Isometric Circle Video link

https://www.tes.com/teaching-resource/isometric-circles-4-arc-method-11848236

https://youtu.be/Hg16J_4tmPk

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•Draw an isometric cube, all sides should be equal to 3".
•Mention all the angles in cube.
• The paper sizes should be A3.
• Avoid sketchbook.
•Assignments copied from
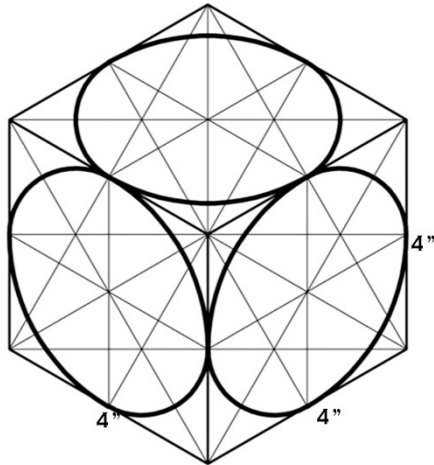 fellows will be marked zero.
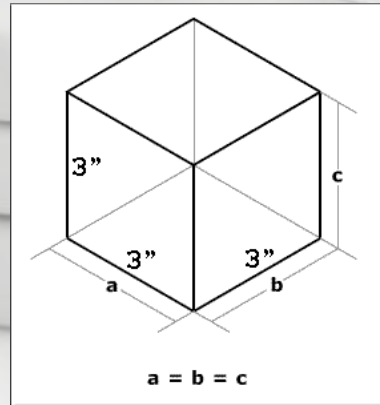
DRAW AN ISOMETRIC VIEW OF THE GIVEN SHAPE

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IQRA national University, Peshawar.

• Draw an isometric circle in the given Cube, all sides of the cube should be equal to 4".
• The paper sizes should be A3.
• Avoid sketchbook.
• Assignments copied from fellows will be marked zero.

4"
4"
4"

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DRAW AN ISOMETRIC CIRCLE OF THE GIVEN CUBE

Thanks