

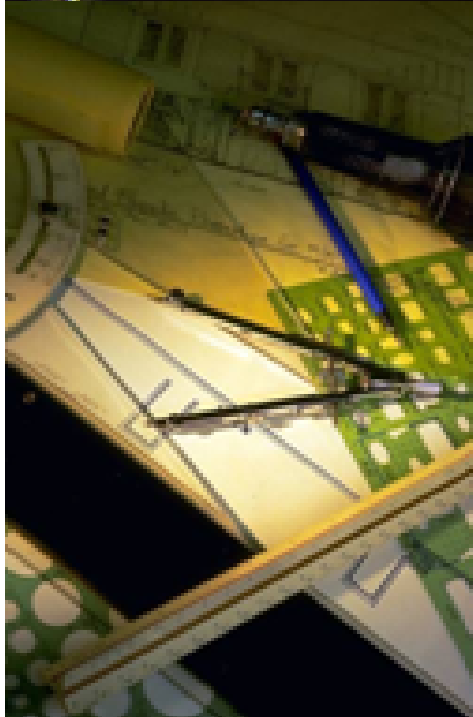
ENGINEERING DRAWING

**Prepared by
Dr. Samy Aly Hassan**

2024 - 2025

LECTURE 3

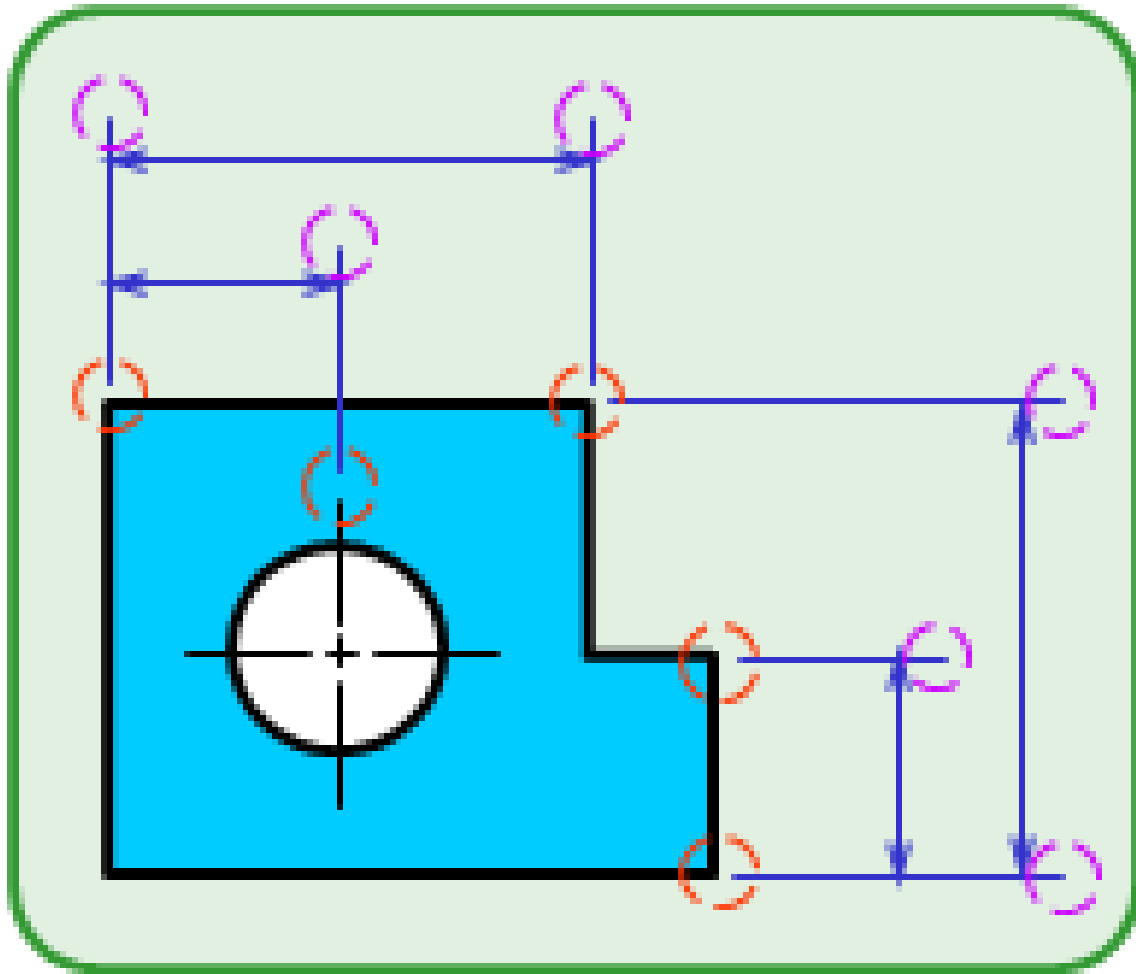
- **Dimensioning**
- **Axonometric Projection**
- **Isometric Drawings – Procedures**



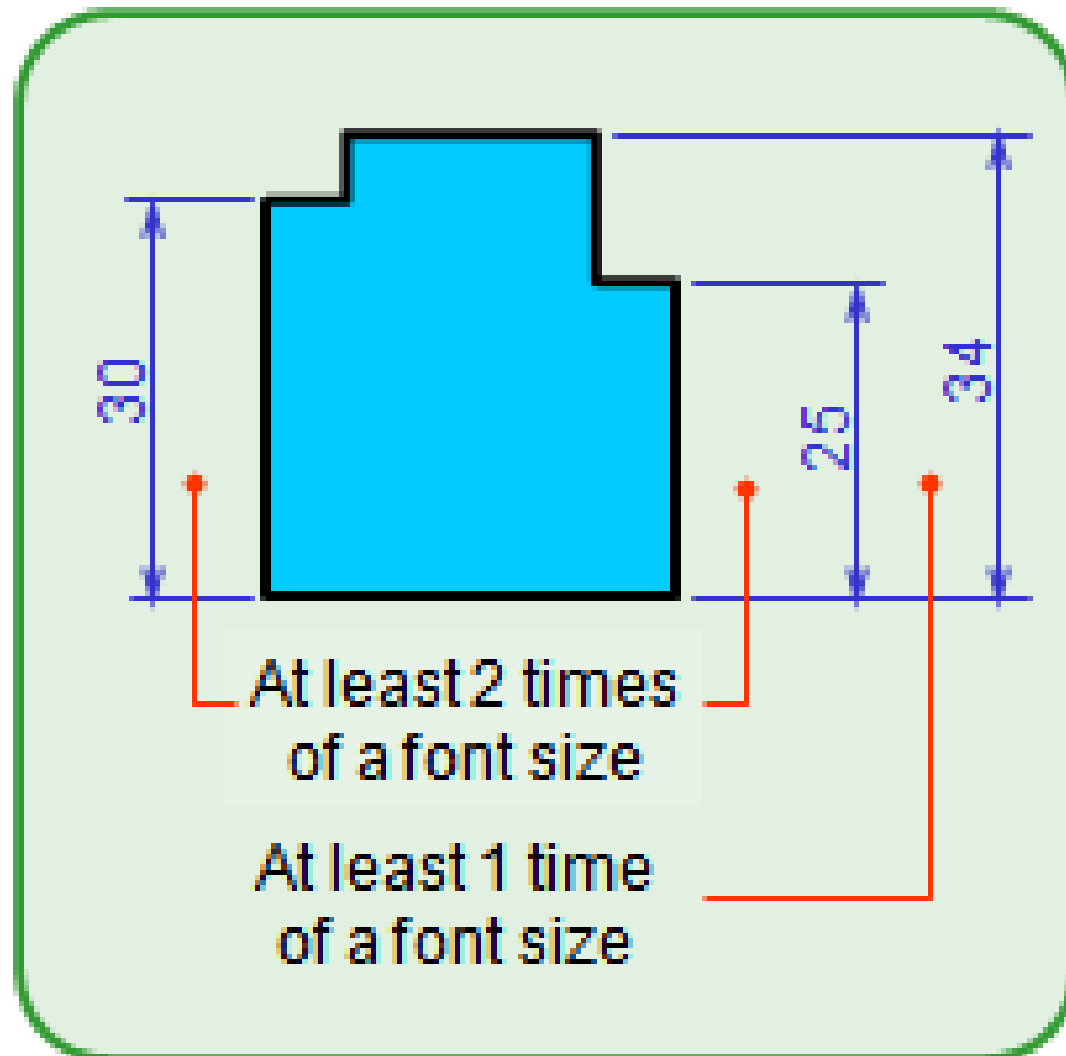
Dimensioning components :

- 1. Extension Lines**
- 2. Dimension Lines**
- 3. Dimension Arrows**
- 4. Dimension Numbers**

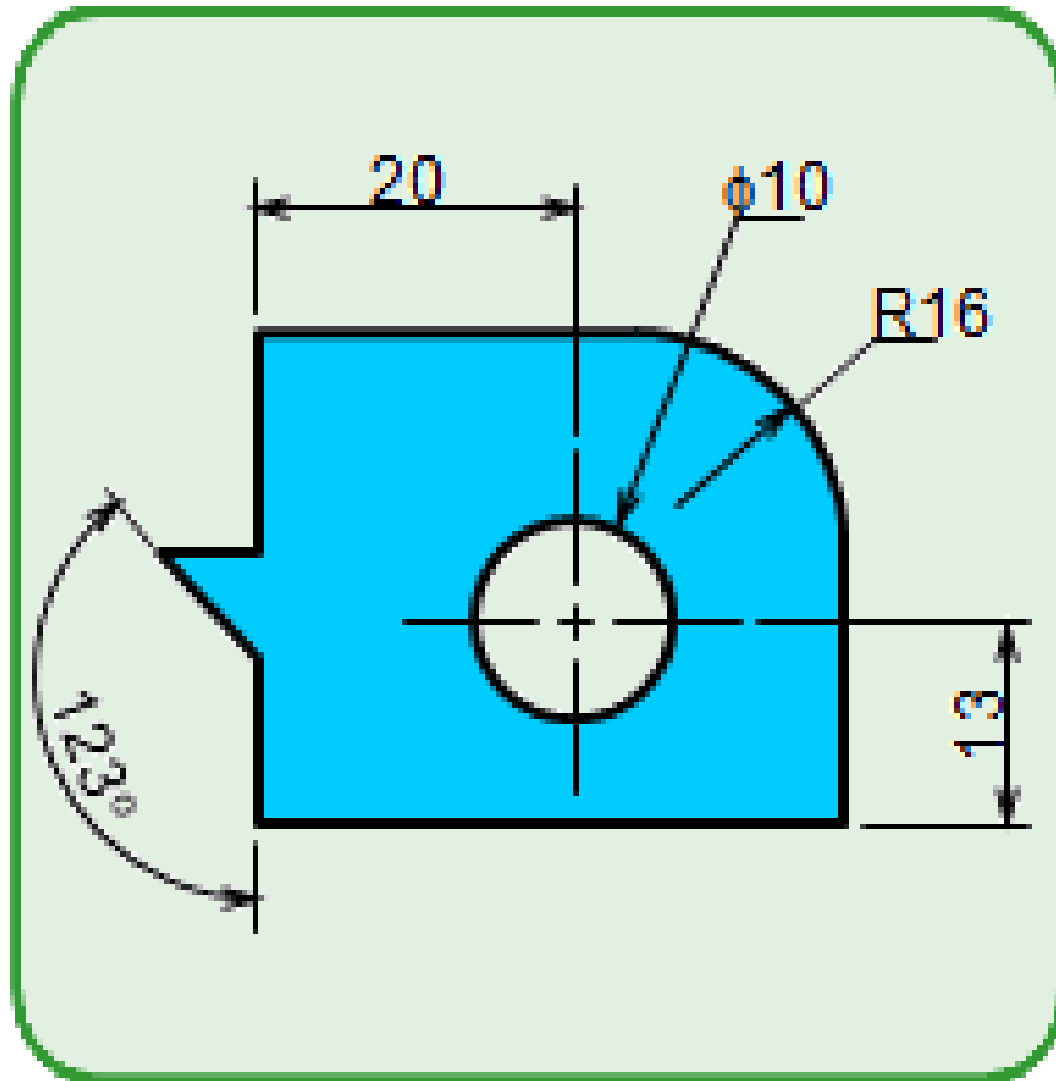
Extension line



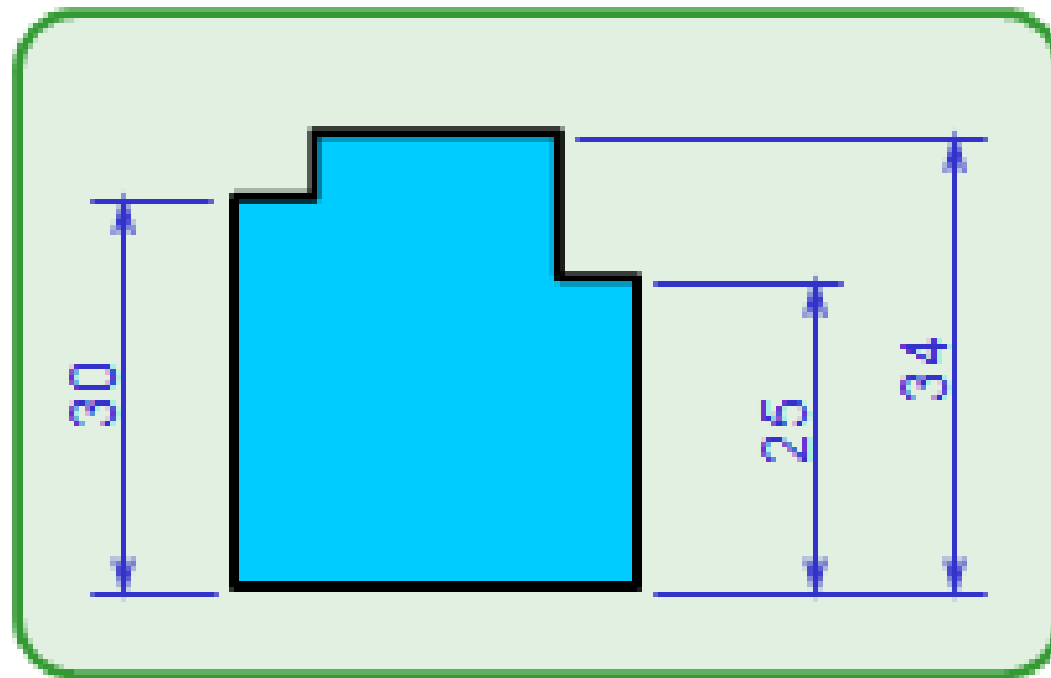
Dimension line



Dimension Arrow

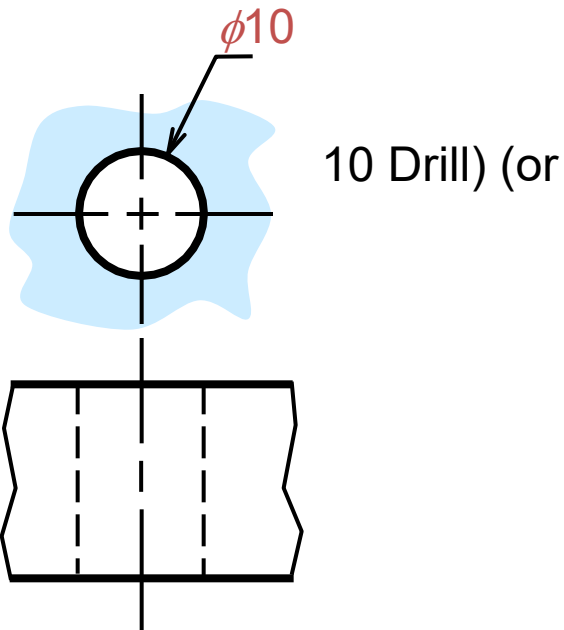
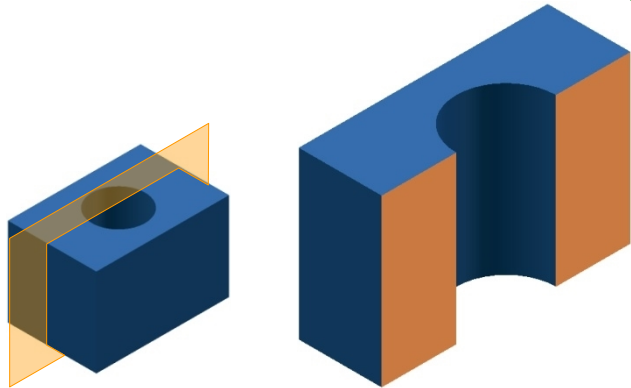


Dimension number

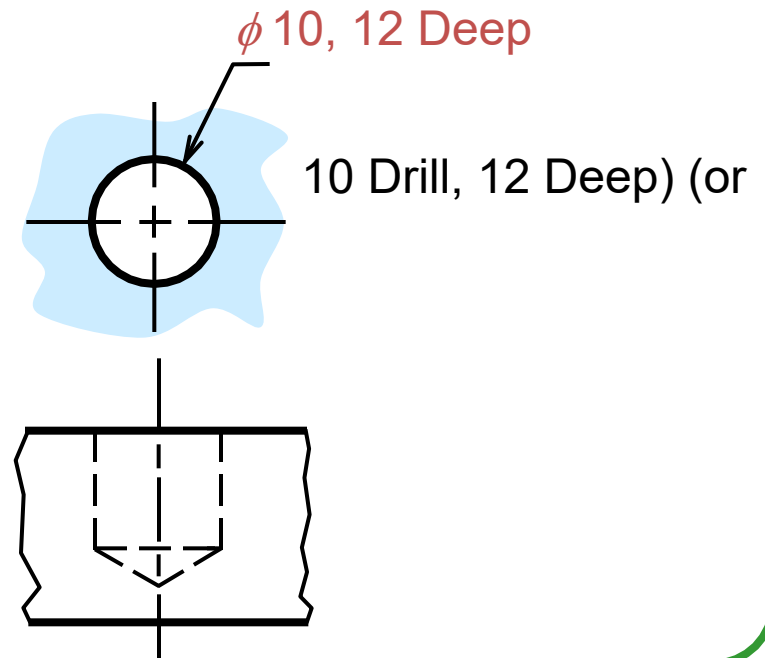
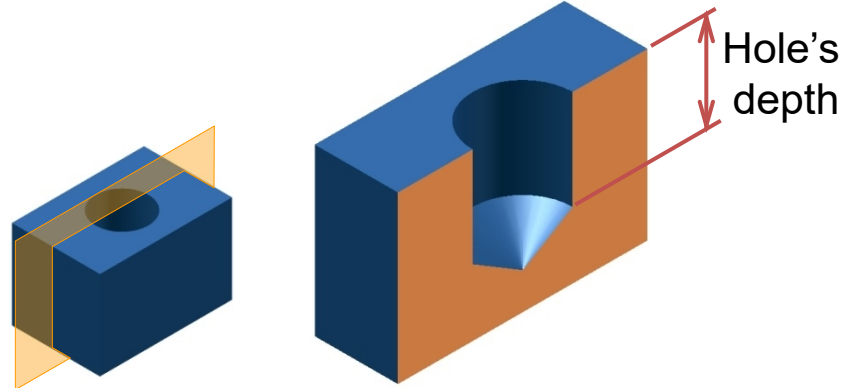


Small hole : Specifying a diameter and a depth

1) Through hole

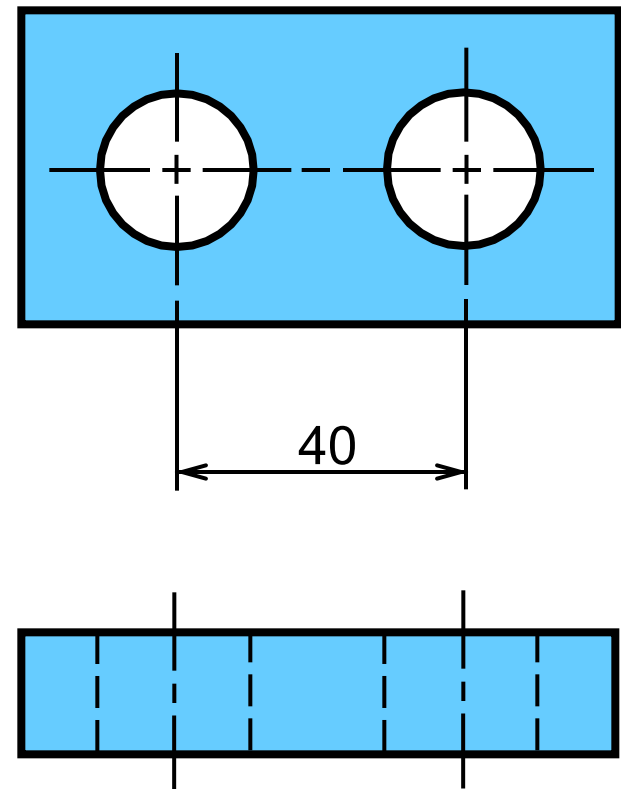
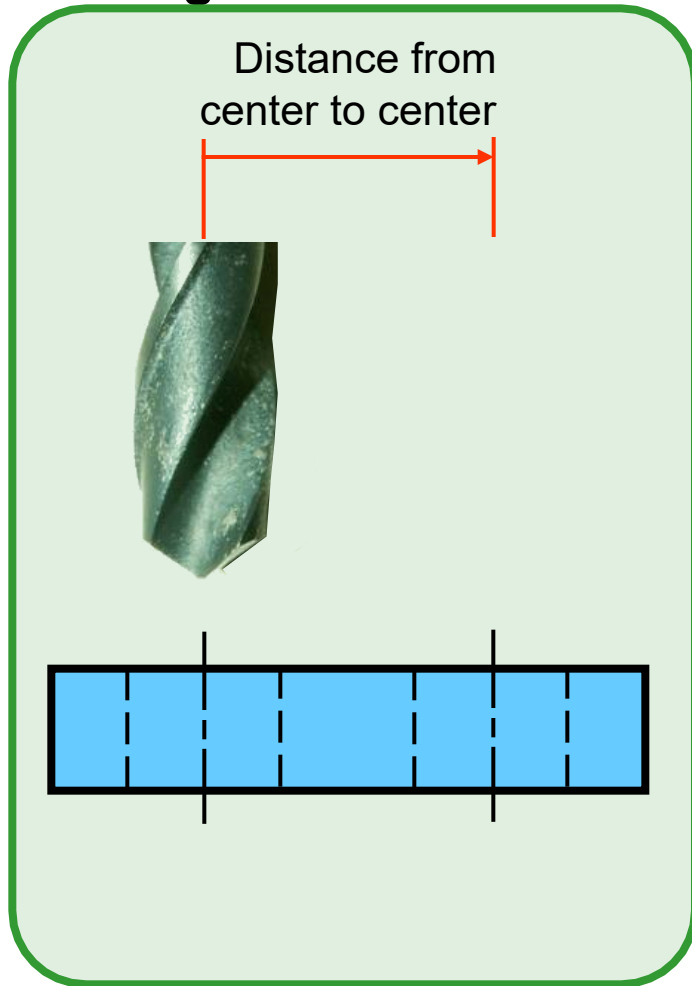


2) Blinded hole



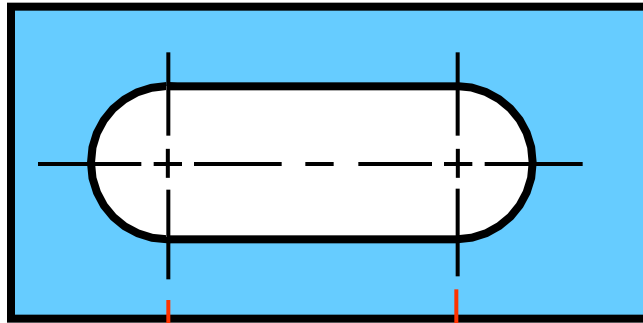
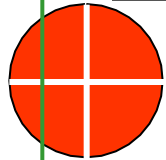
Small hole : Specifying a location

Drilling a hole



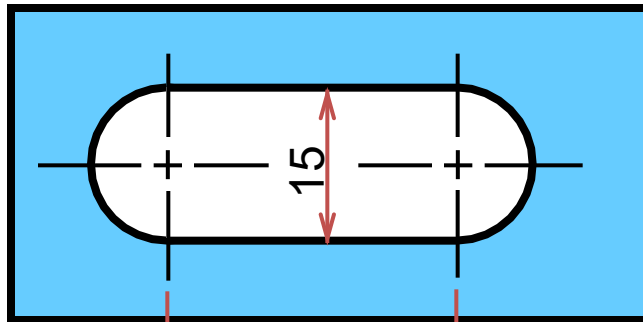
Straight slot

**Machining
process**



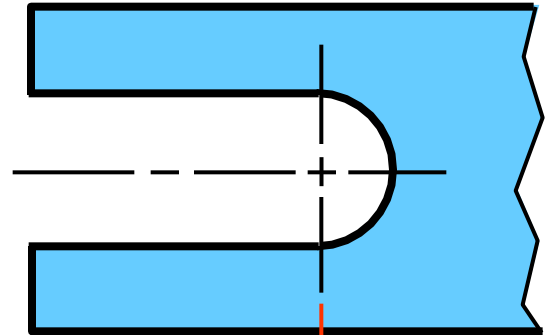
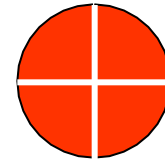
Distance from
center to center

**Dimen-
sioning**

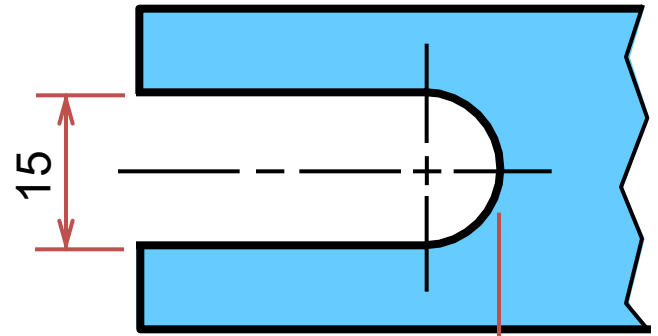


40

15



Tool cutting distance



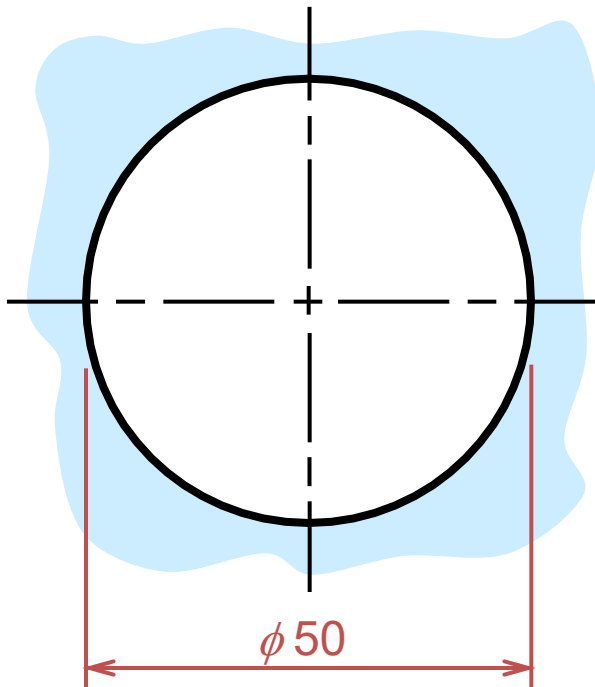
50

15

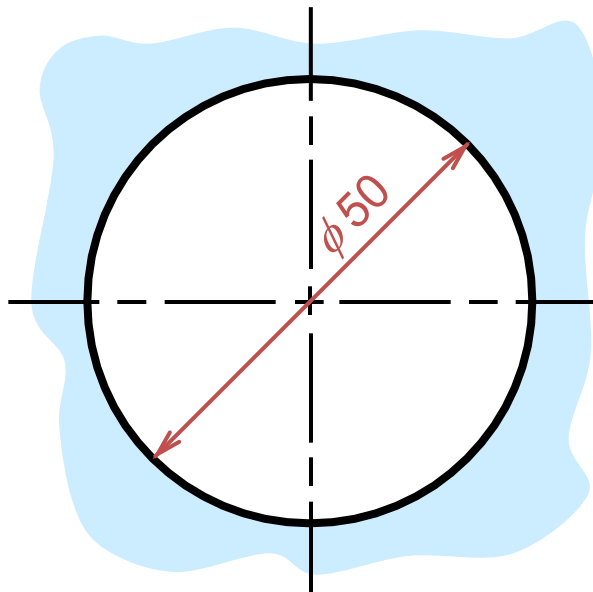
Large hole

■ Three possible methods are:-

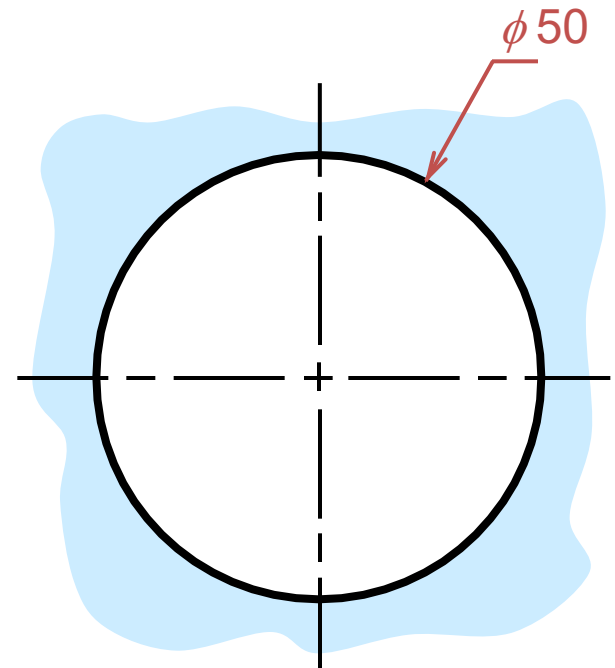
**Use extension and
dimension lines**



**Use diametral
dimension line**



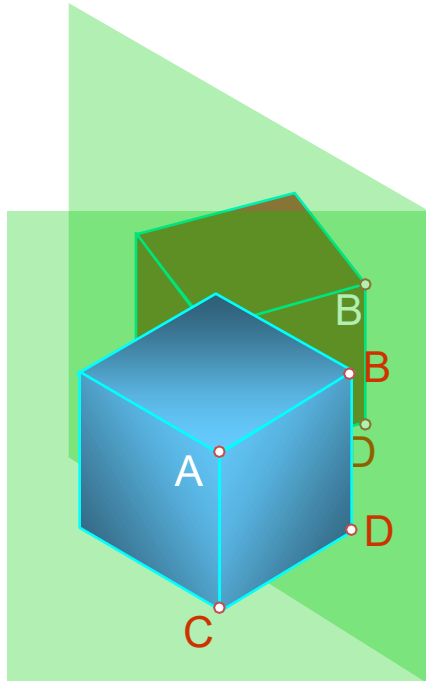
**Use leader line and
note**



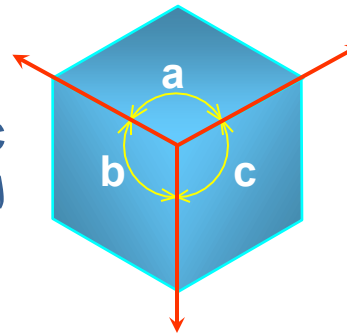
Axonometric Projection

الإسقاط الأكسونومتري

Types of axonometric drawing أنواع الرسم الأكسونومتري



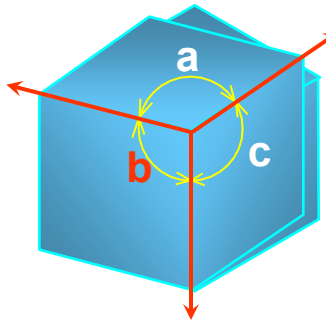
1. Isometric الأيزومتري



Axonometric axis

All angles are equal.
كل الزوايا الثلاث متساوية

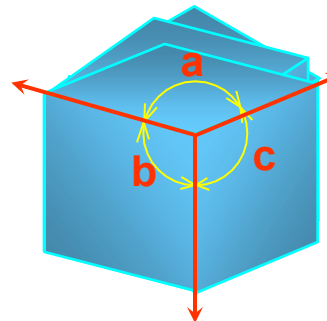
2. Dimetric الديامتري



Axonometric axis

Two angles are equal.
زاويتين فقط متساويتين

3. Trimetric الترايمتري



Axonometric axis

None of angles are equal.
الزوايا غير متساوية

Isometric Drawings – Procedures

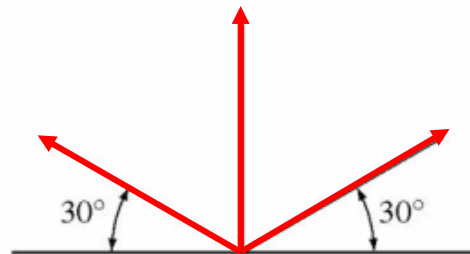
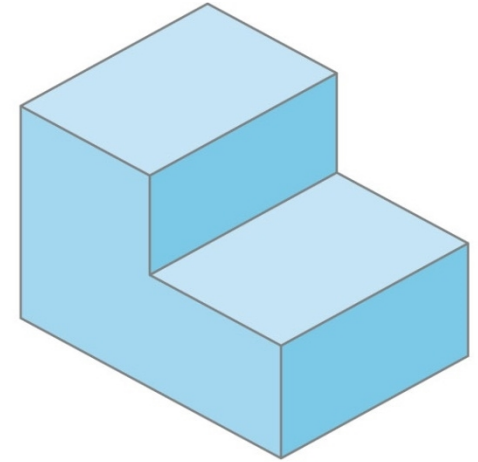
We will use the object shown to ☐
illustrate the steps of isometric
drawings

Step 1:

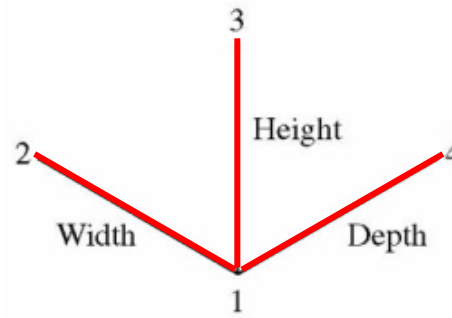
Draw width, height, and depth axes ■

Step 2:

Measure and draw total width, height, ■
and depth of object



Step 1



Step 2

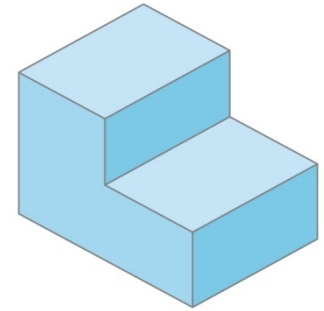
Isometric Drawings – Procedures

Step 3:

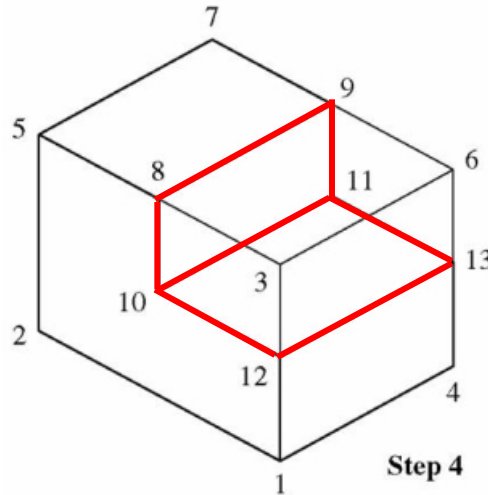
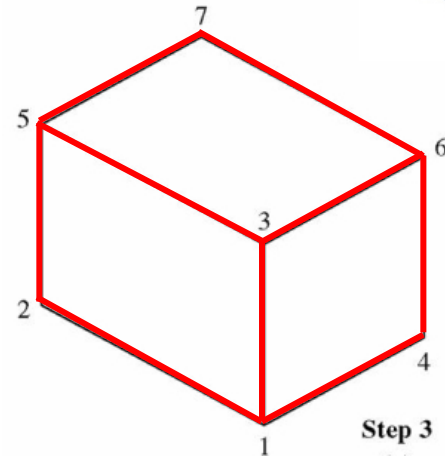
Create the front, top, and side work faces

Step 4:

Complete the drawing as marked by the remaining line numbers



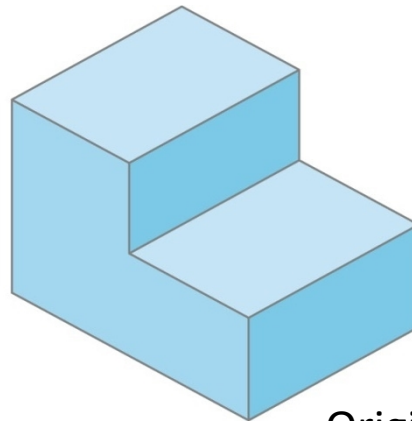
Original



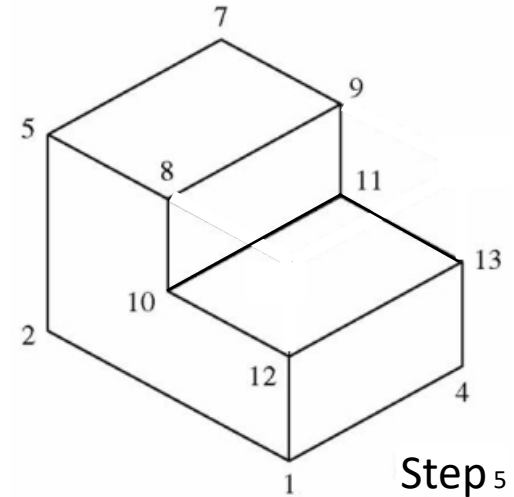
Isometric Drawings – Procedures

Step 5:

Erase unnecessary lines to yield final drawing



Original



Example: Isometric Drawings

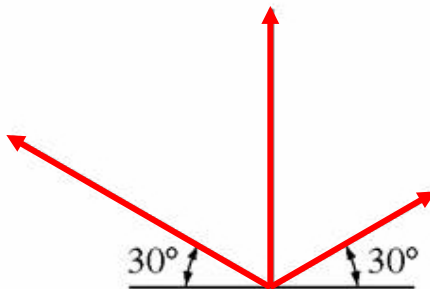
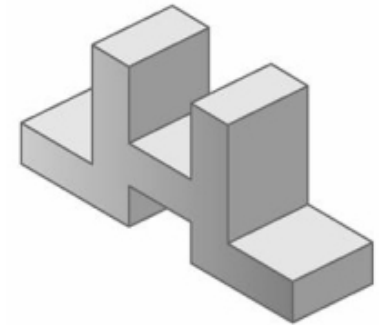
Given: object as shown

Find: draw isometric view of object

Solution:

Step 1:

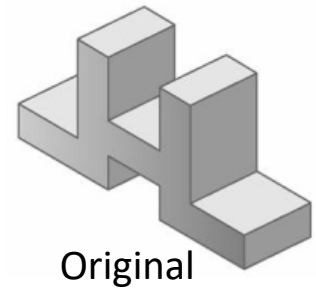
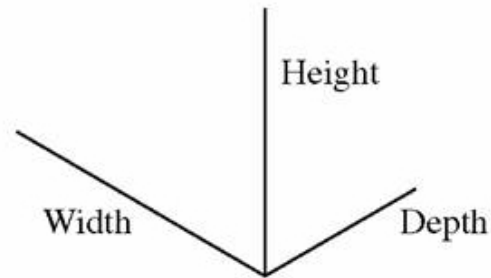
Draw width, height, and depth axes



Example: Isometric Drawings

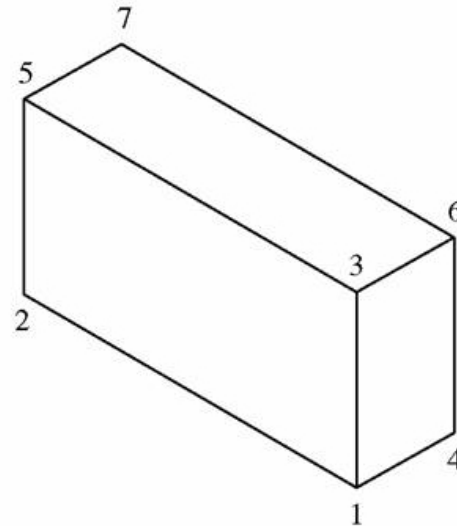
Step 2:

Measure and draw total width, height, and depth of object



Step 3:

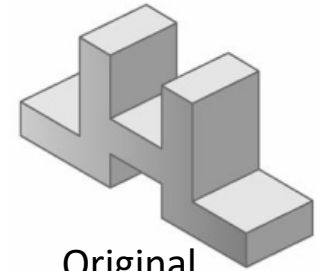
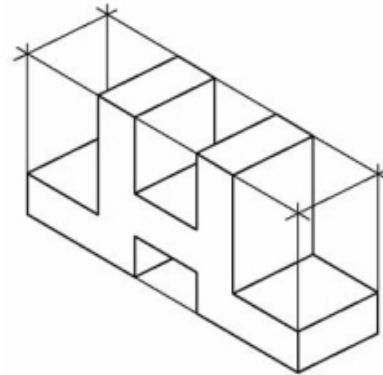
Create the front, top, and side work faces



Example: Isometric Drawings

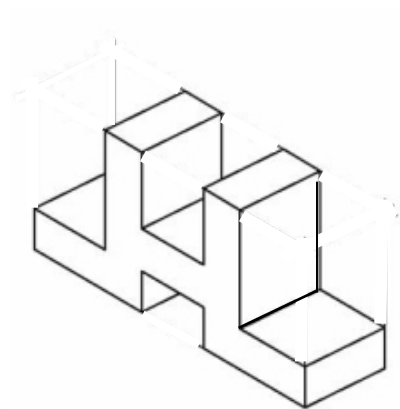
Step 4:

Complete the drawing



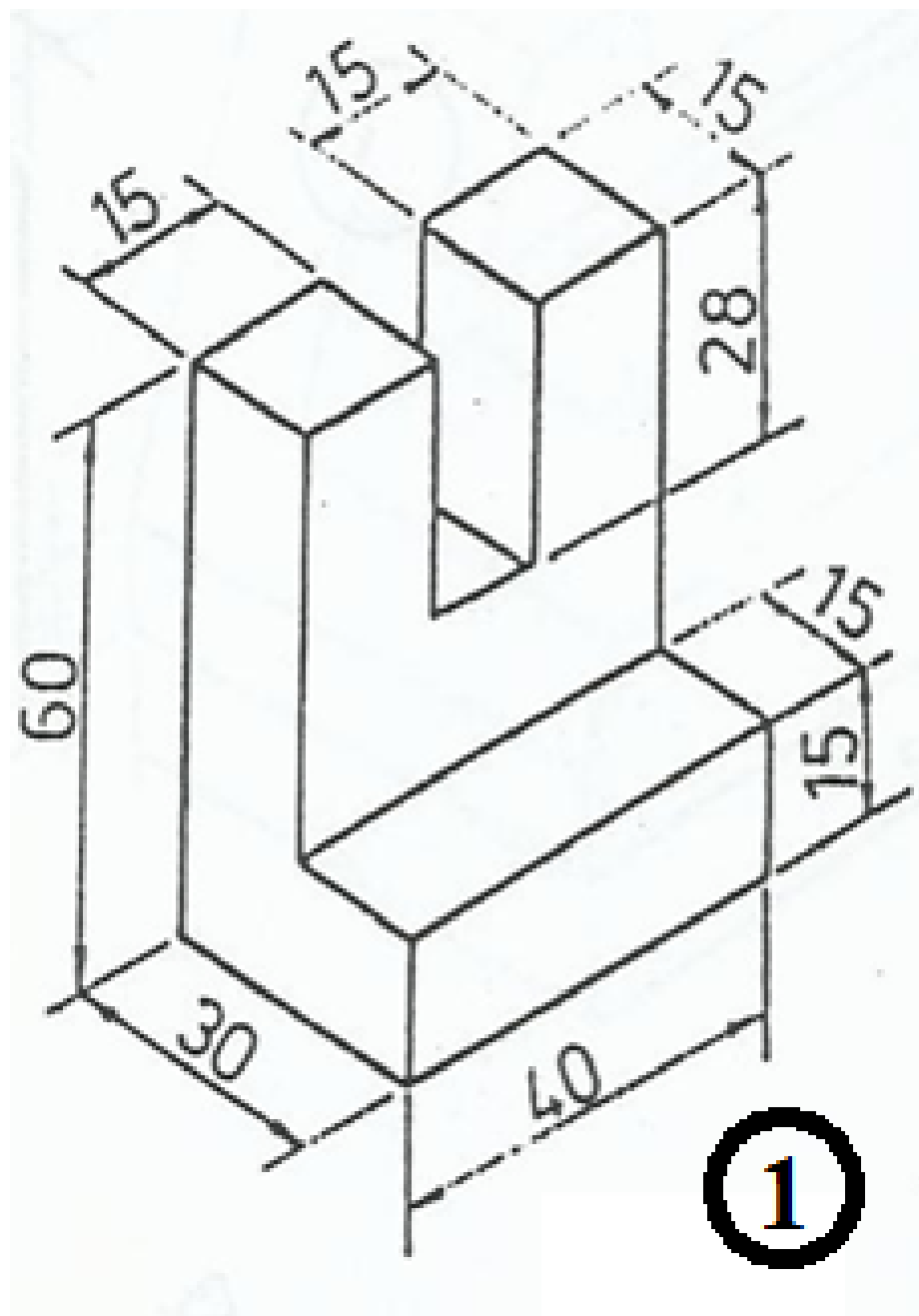
Step 5:

Erase unnecessary lines

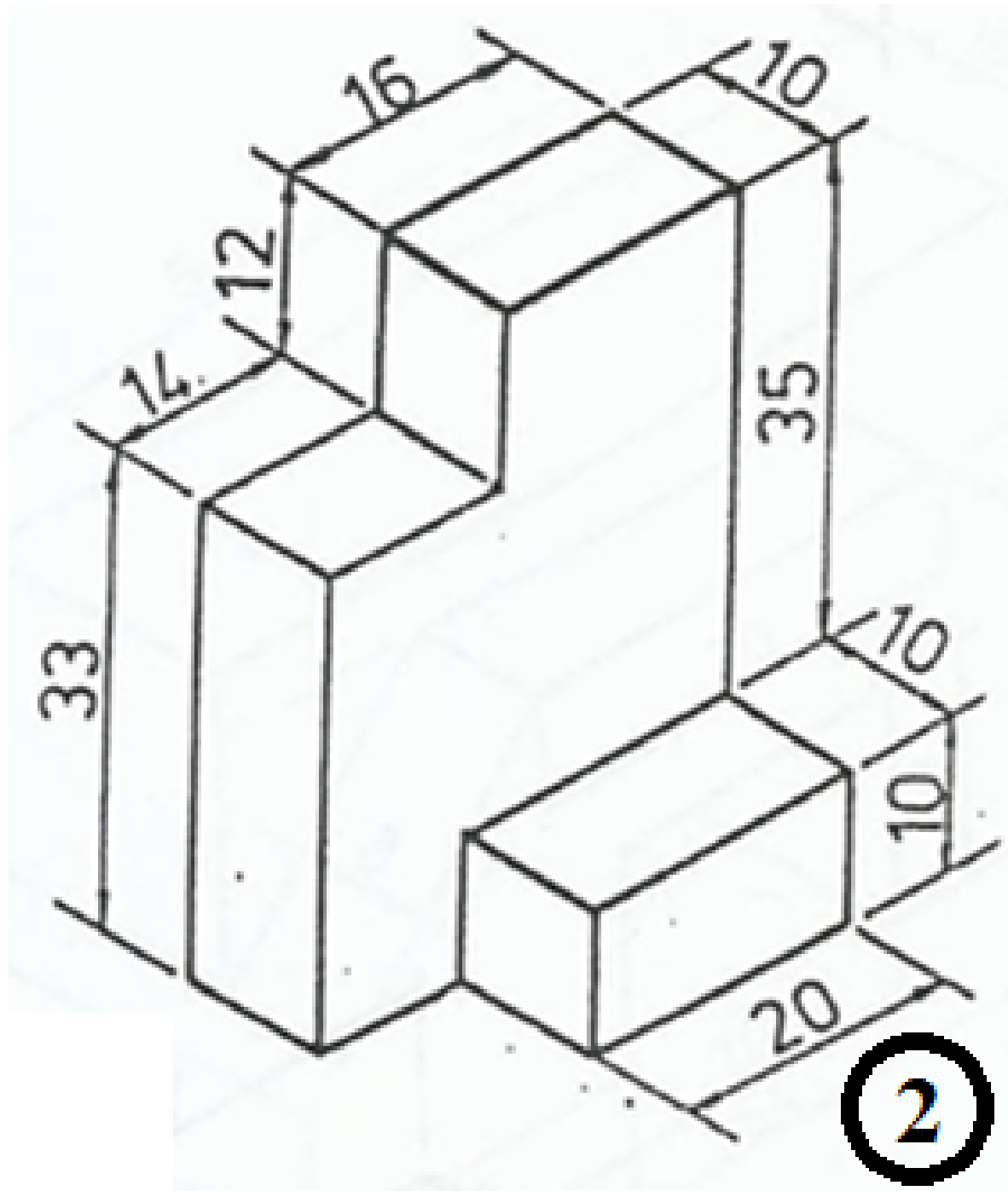


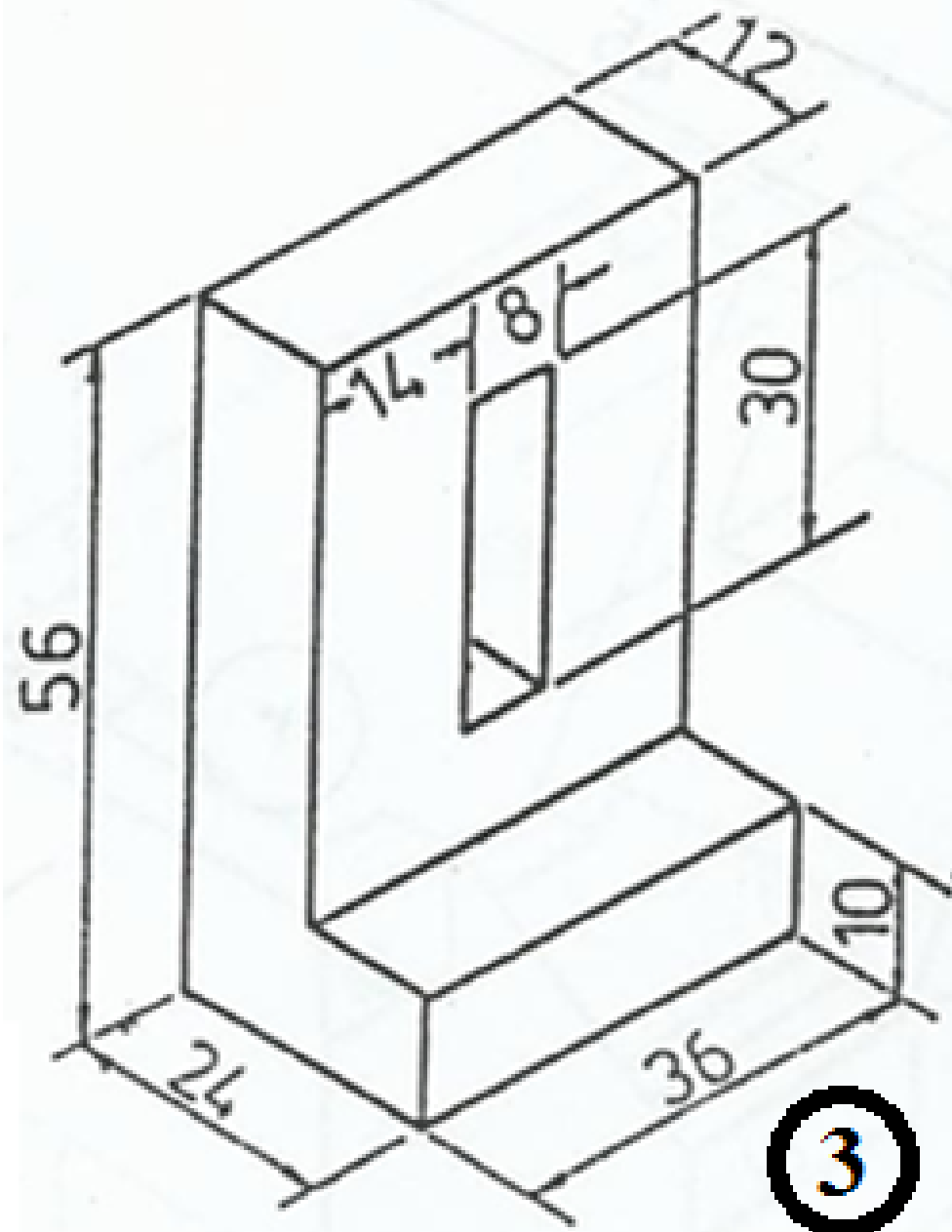
تمارين المحاضرة الثالثة

تَمَارِينُ الصَّلَاةِ

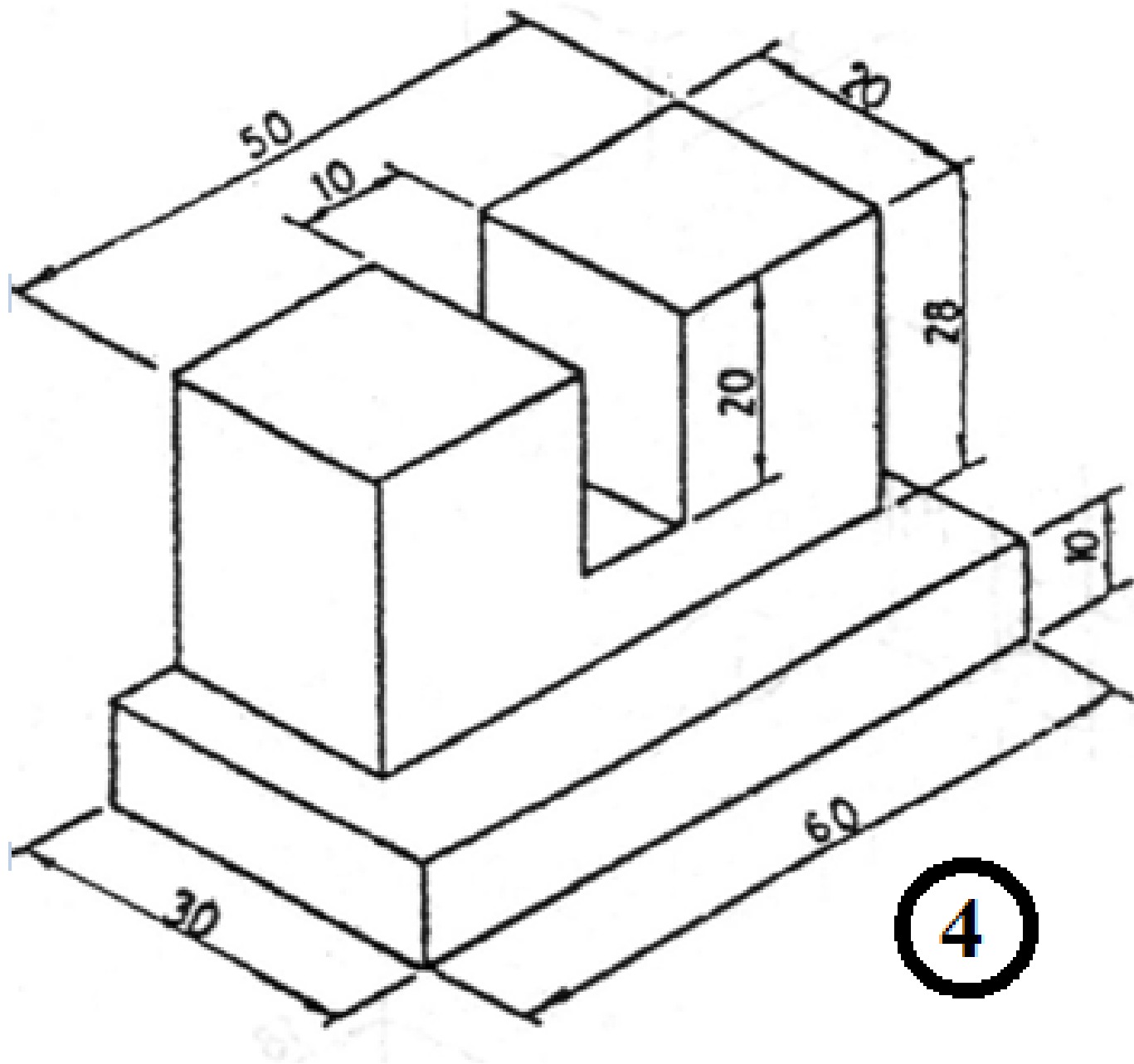


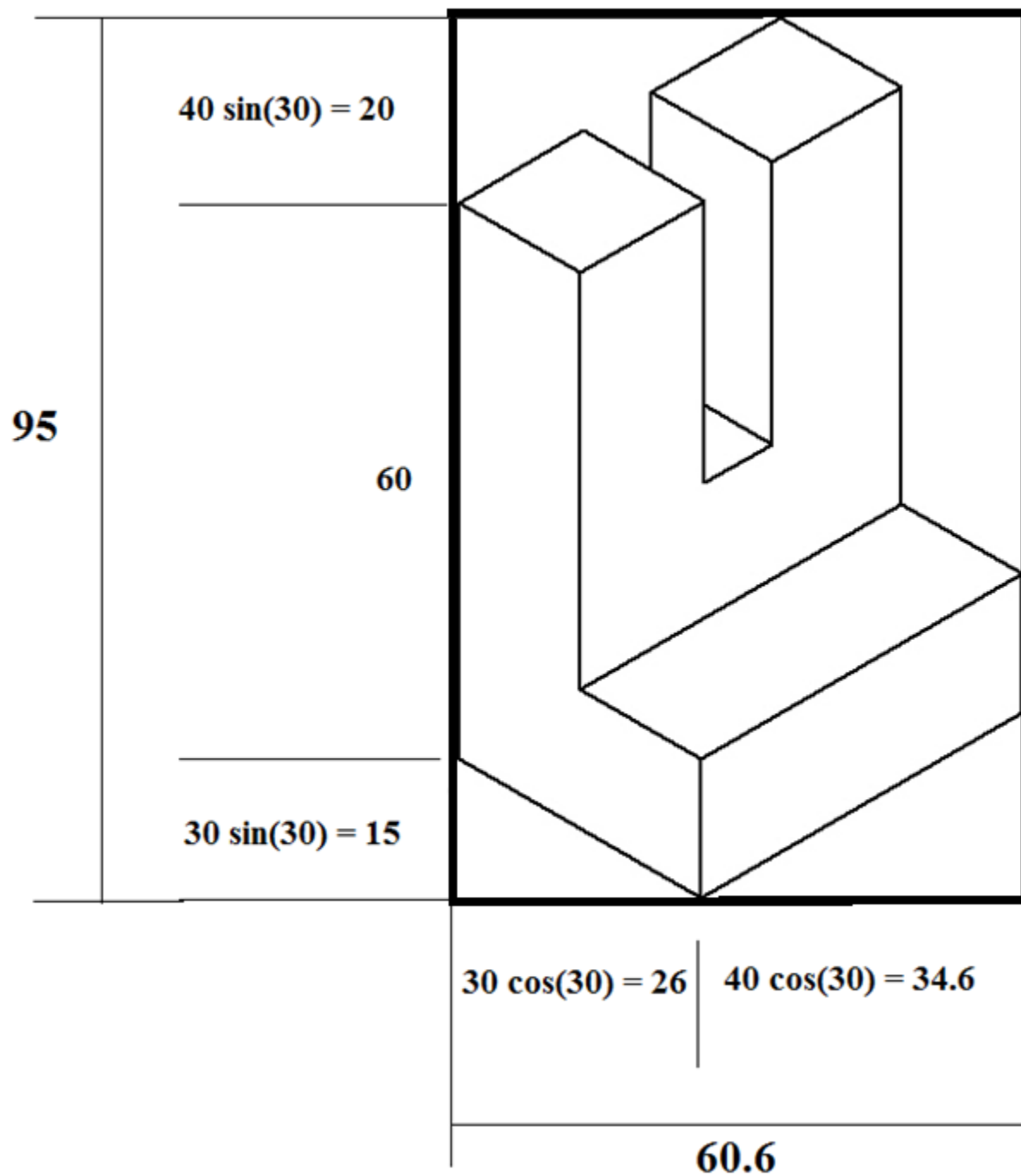
1

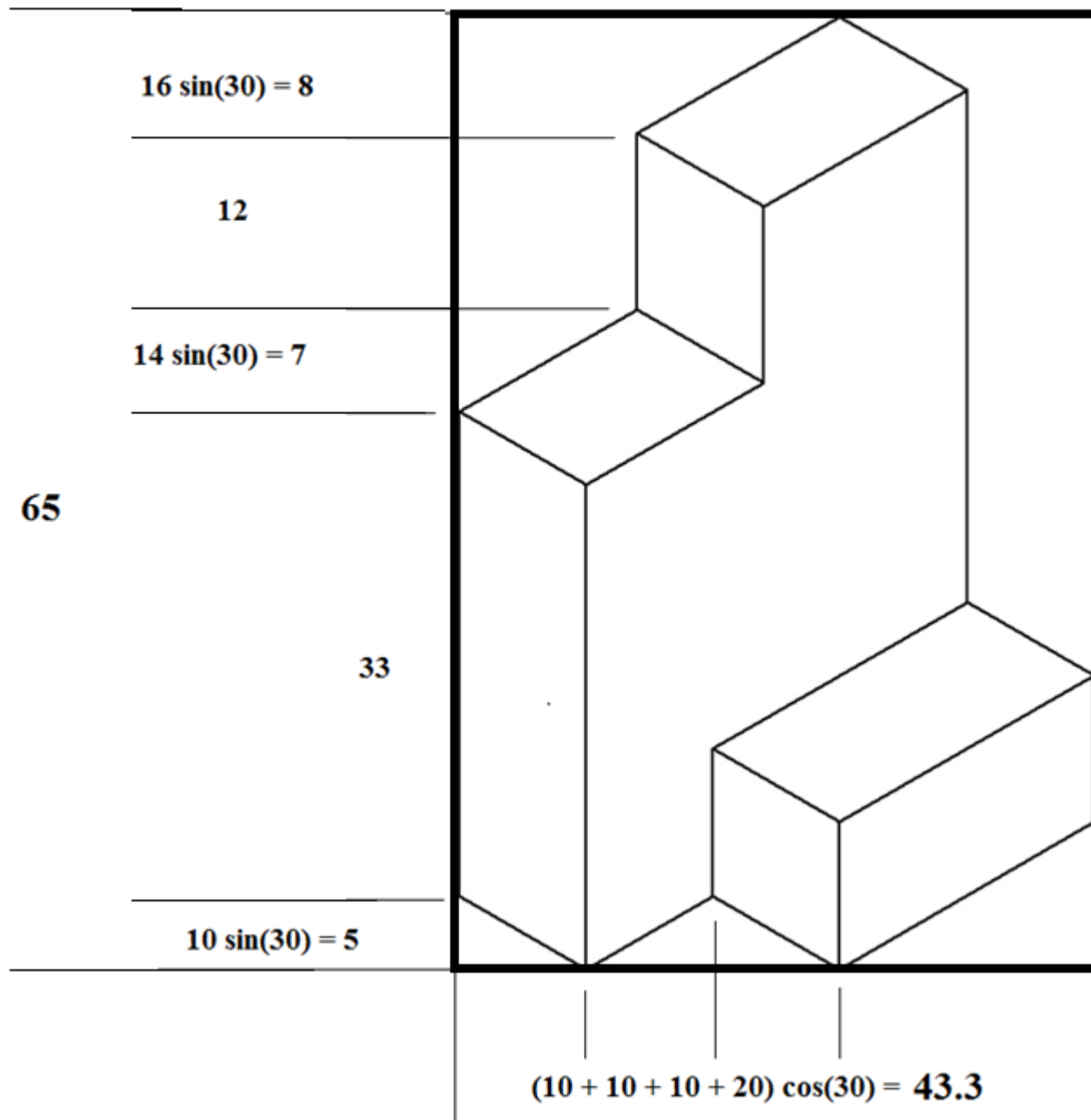


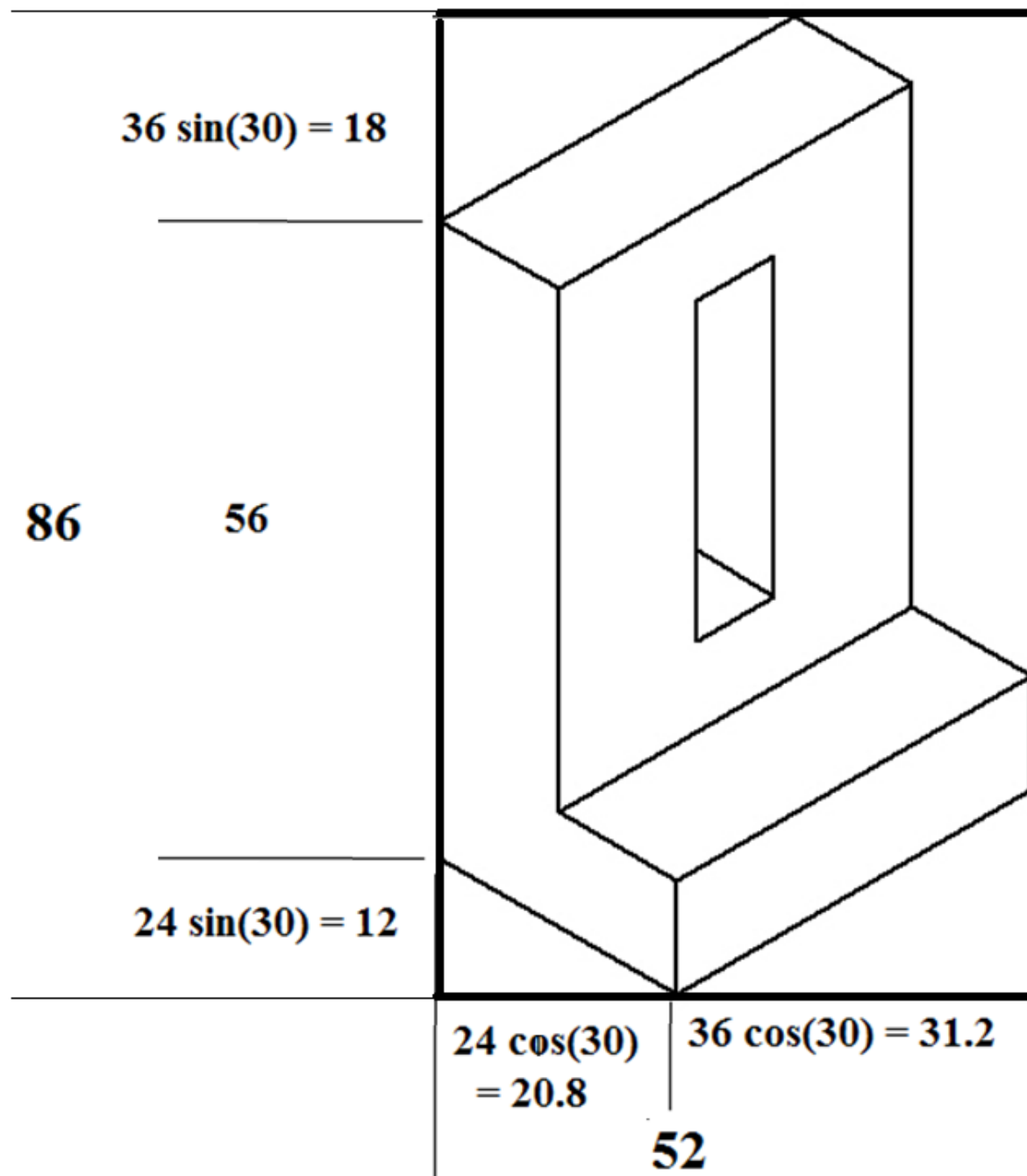


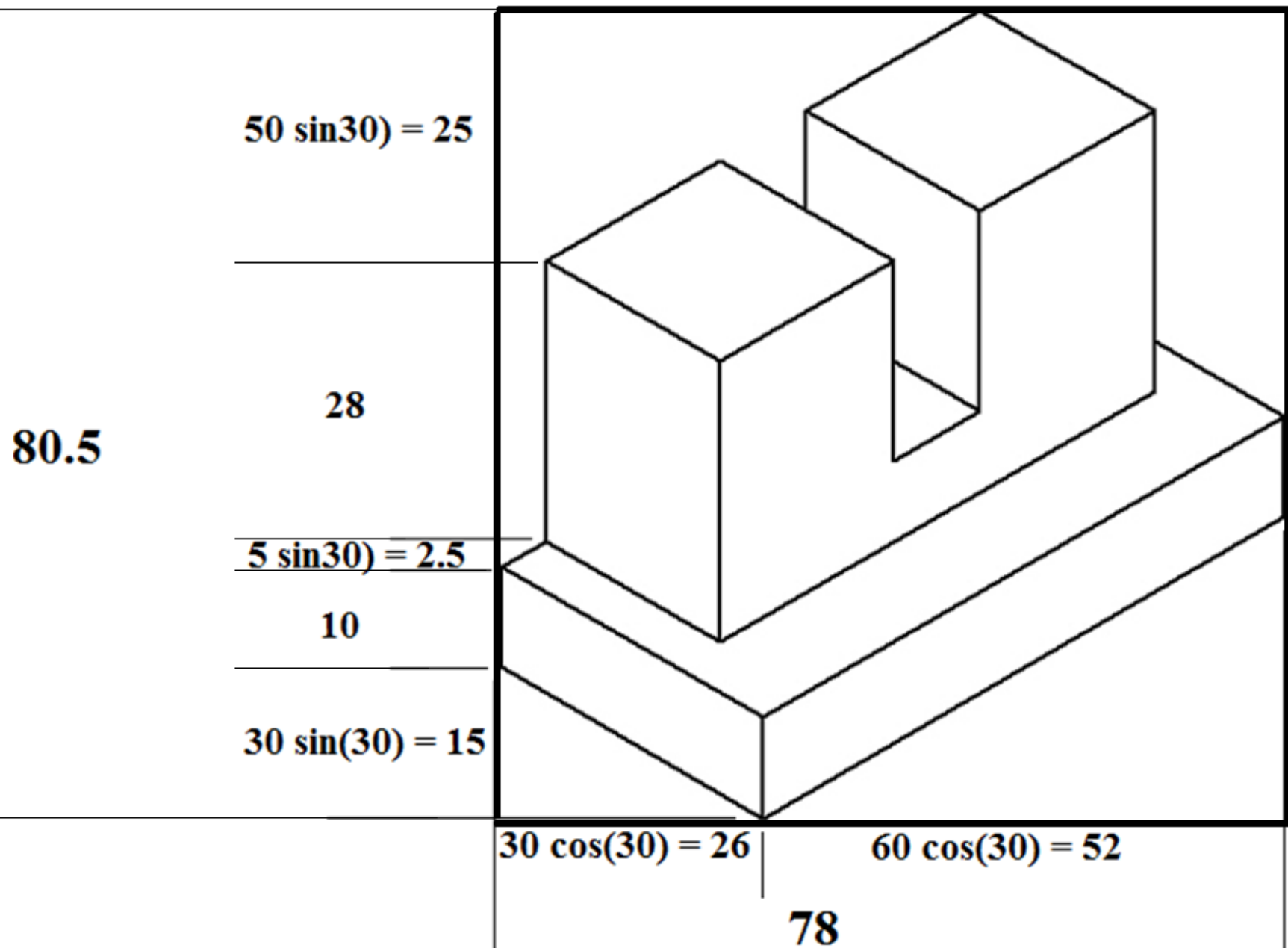
3

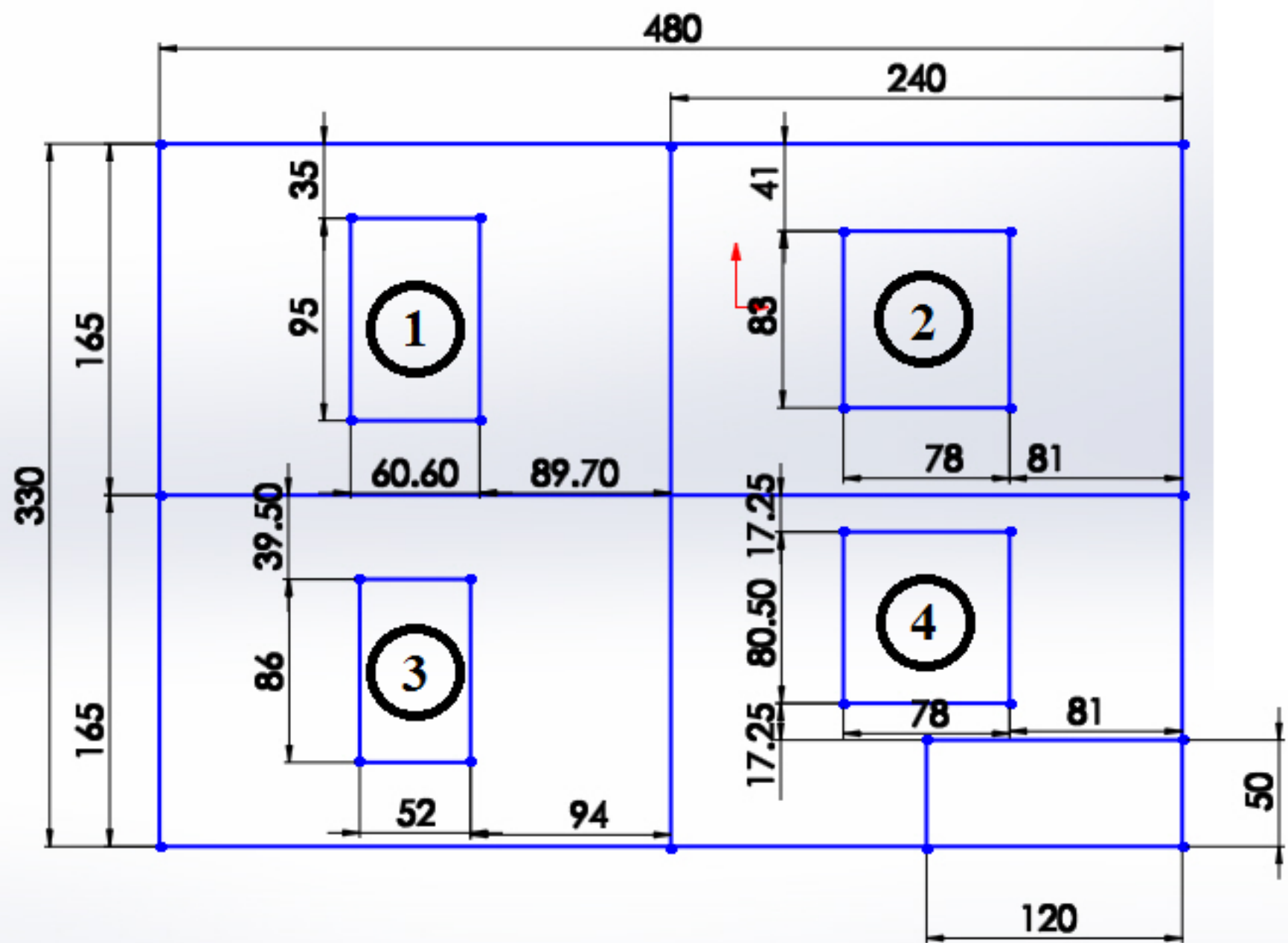




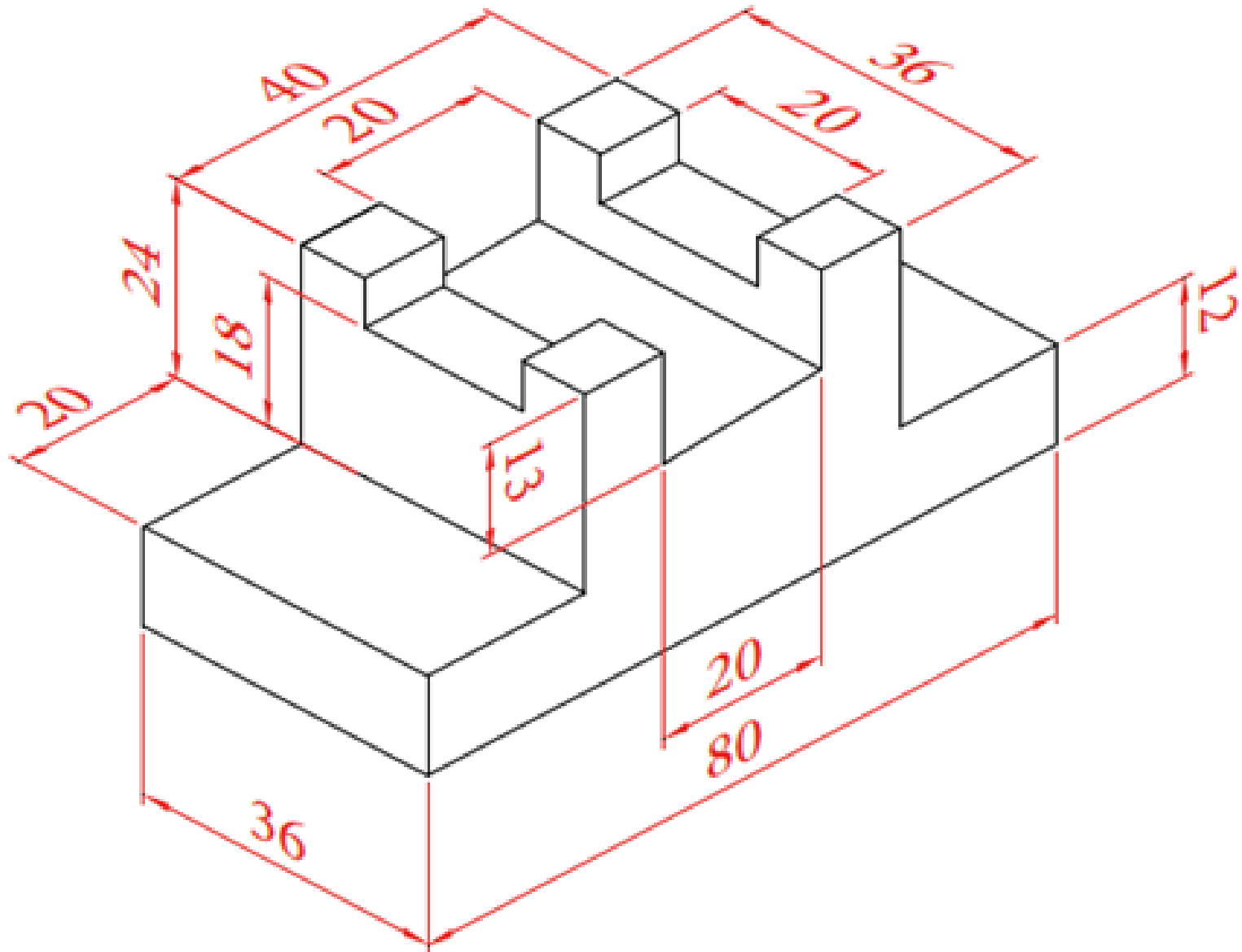


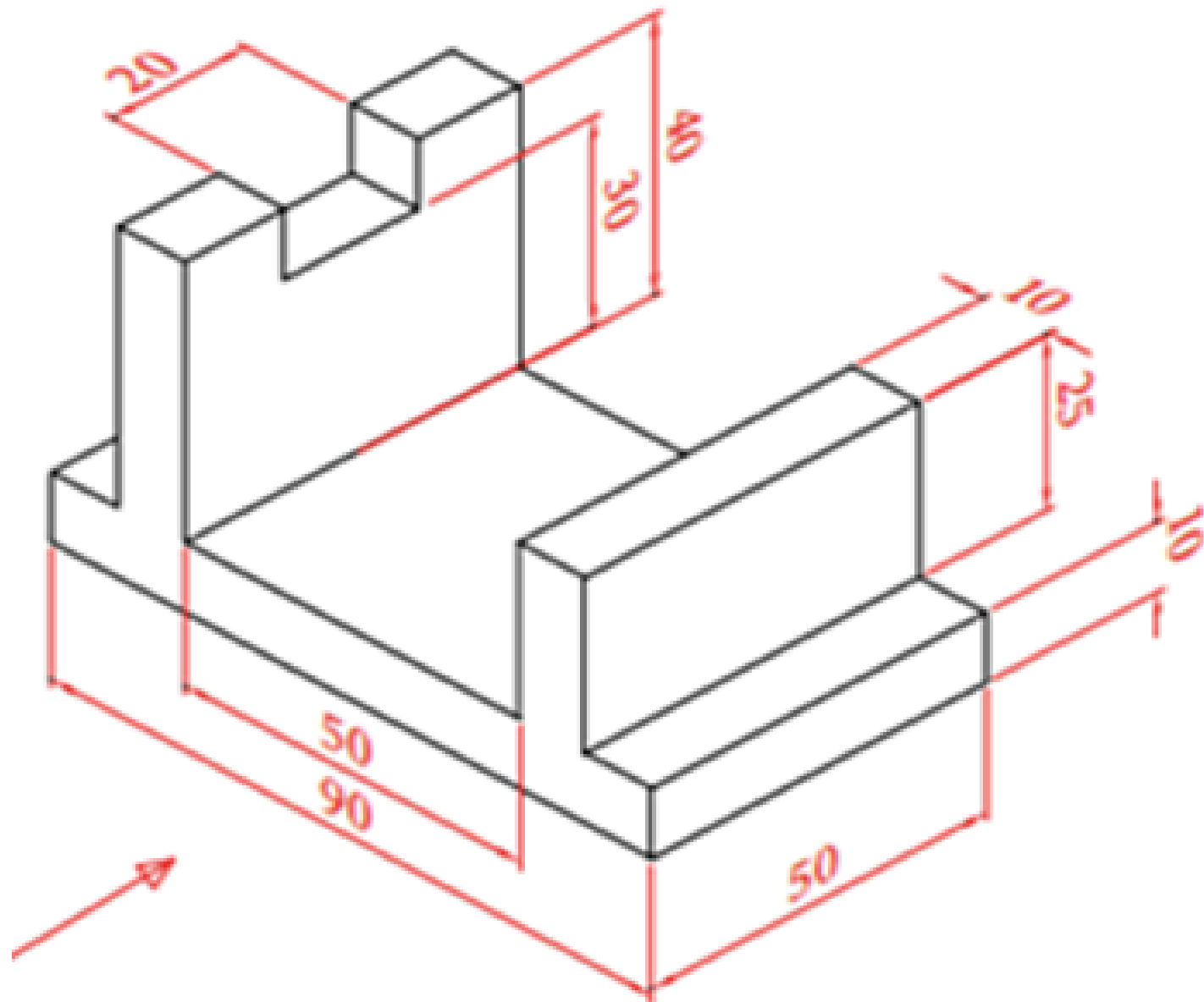






تَمَارِينُ الْوَاجِبِ





End of Lecture 3