

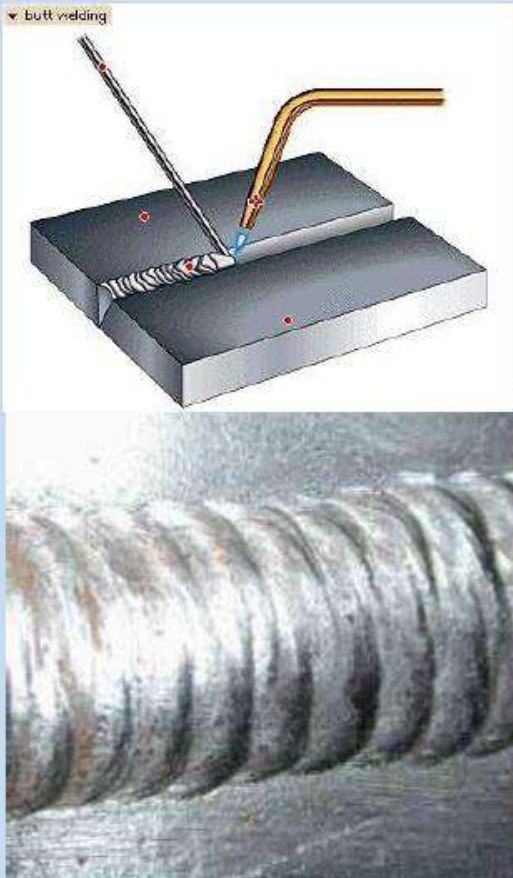
TOPICS

- Introduction
- Thread terminology
- Thread drawing and dimensioning
- Threaded fastener

FASTENING TYPE

1. Permanent

Welding



Gluings



Riveting



FASTENING TYPE

2. Temporary

1. *Threaded fastener*

- bolts
- studs
- screws



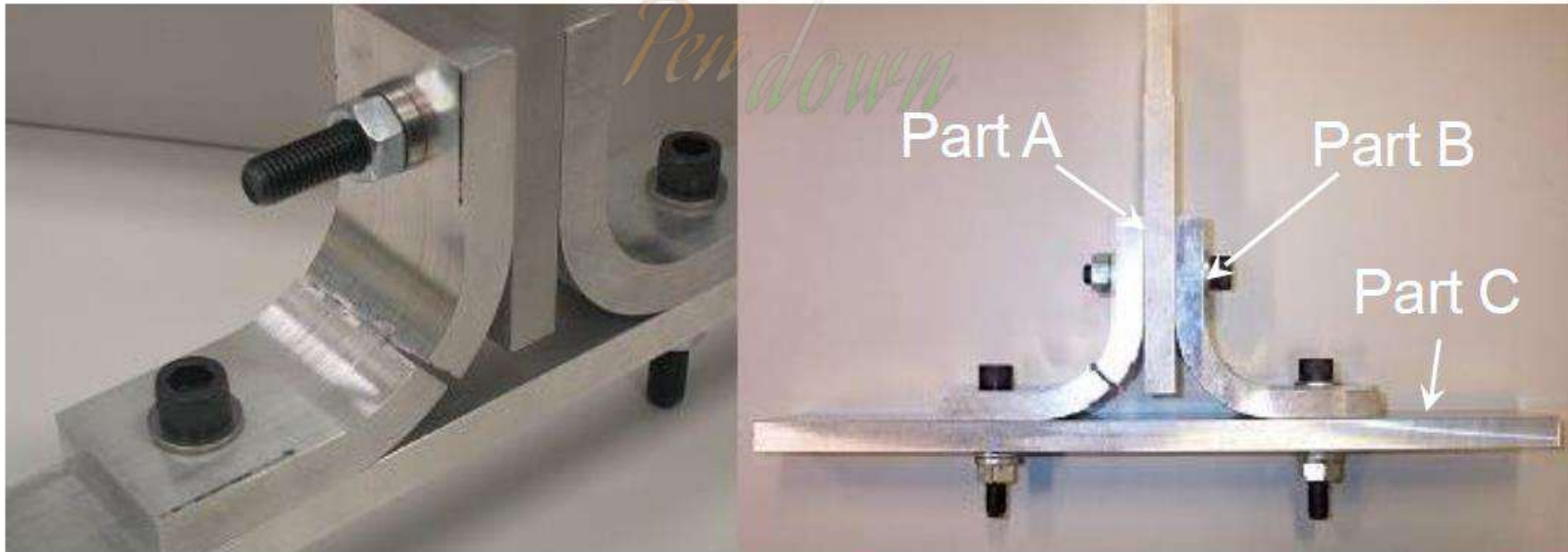
2. *Non-threaded fastener*

- keys
- pin



THREAD APPLICATION

1. To hold parts together.
2. To move part(s) relative to others.



THREAD APPLICATION

1. To hold parts together.
2. To move part(s) relative to others.



Wood working vise



Palm fruit pressing machine

THREAD TERMINOLOGY

External (male) thread

A thread cut on the ***outside*** of a cylindrical body.

Internal (female) thread

A thread cut on the ***inside*** of a cylindrical body.

External thread

Internal thread



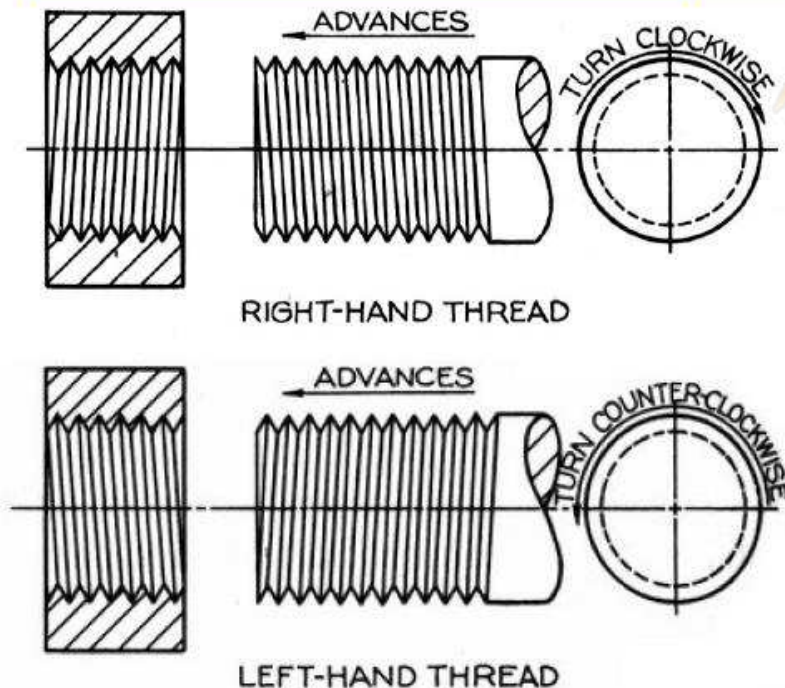
THREAD TERMINOLOGY

**Right-hand
thread**

Thread that will **assemble** when
turned **clockwise**.

**Left-hand
thread**

Thread that will **assemble** when
turned **counter-clockwise**.



Turnbuckle use RH and LH thread at
each end to double displacement.

THREAD TERMINOLOGY

Crest

The **peak edge** of a thread.

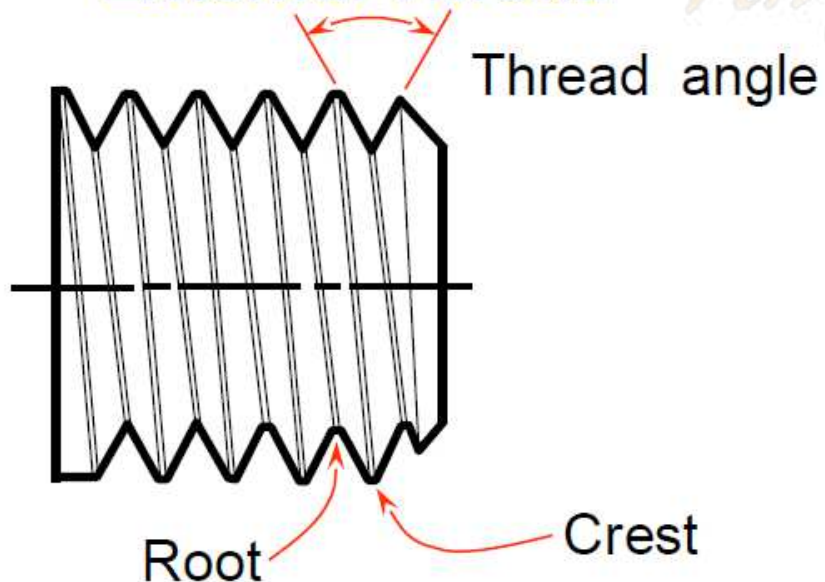
Root

The **bottom** of the thread cut into a cylindrical body.

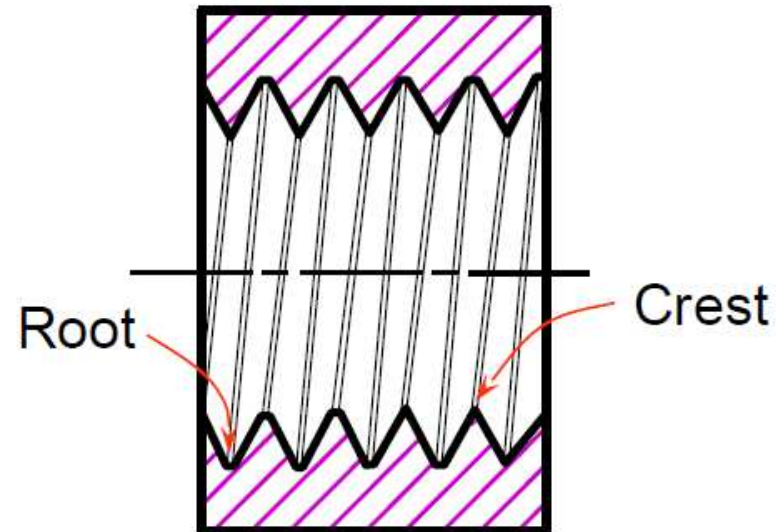
Thread angle

The angle between threads faces.

External Thread



Internal Thread



THREAD TERMINOLOGY

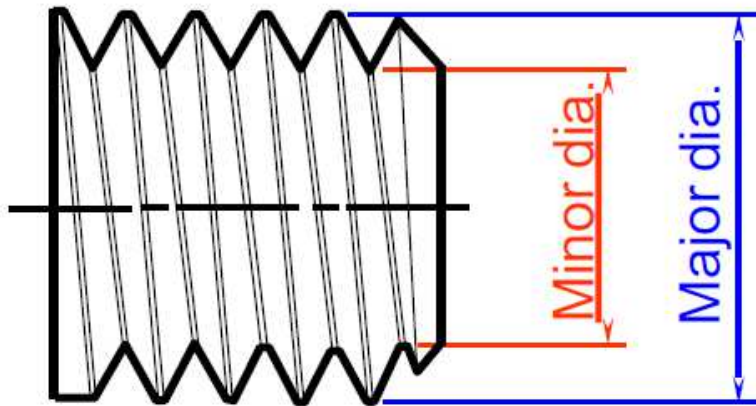
Major diameter

The **largest diameter** on an internal or external thread.

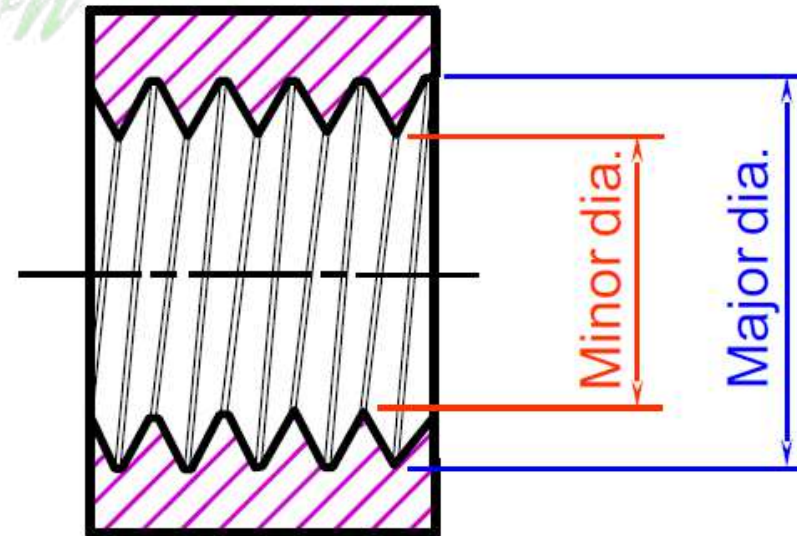
Minor diameter

The **smallest diameter** on an internal or external thread.

External Thread



Internal Thread



THREAD TERMINOLOGY

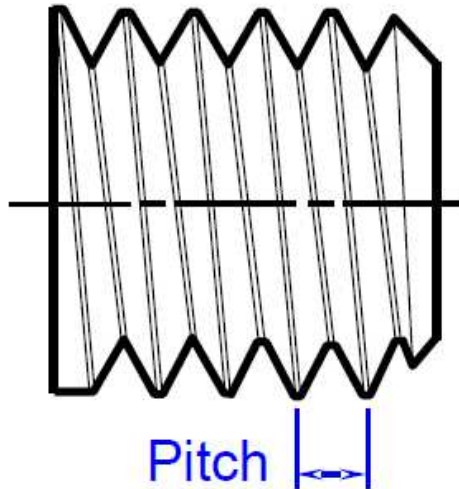
Pitch

The distance between crests of threads.

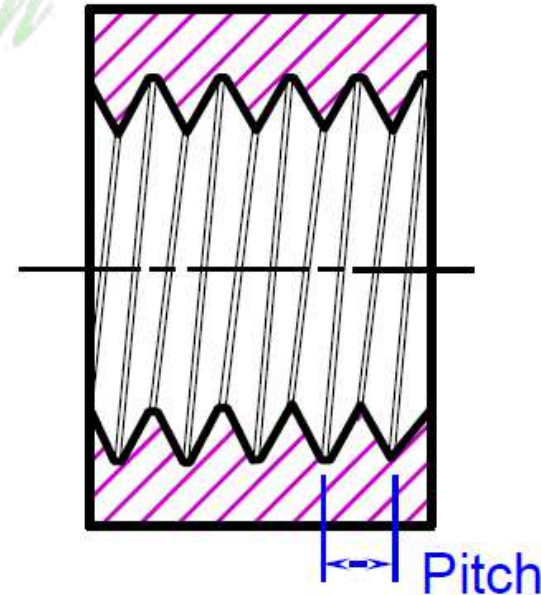
Lead

The distance a screw will advance when turned 360° .

External Thread

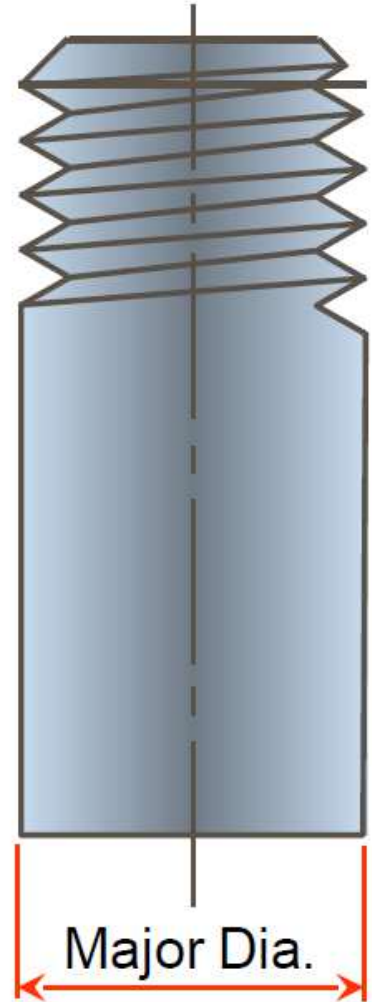


Internal Thread

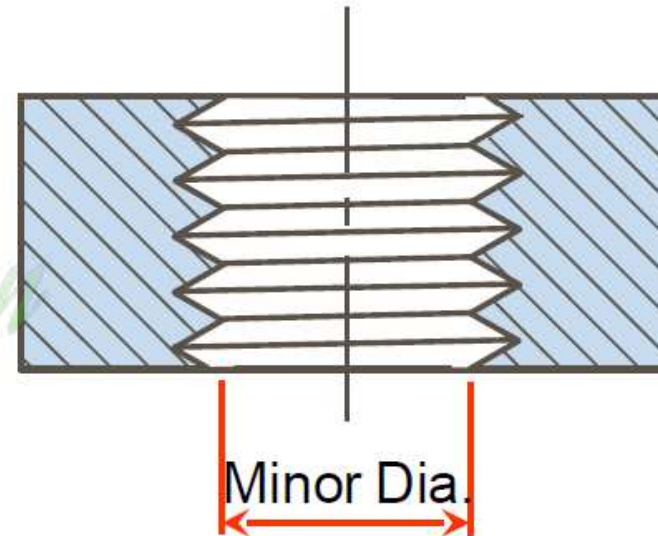


COMPARISON OF THREAD CUTTING

External Thread



Internal Thread



THREAD REPRESENTATION

1. **Detailed** representation
2. **Schematic** representation
3. **Simplified** representation

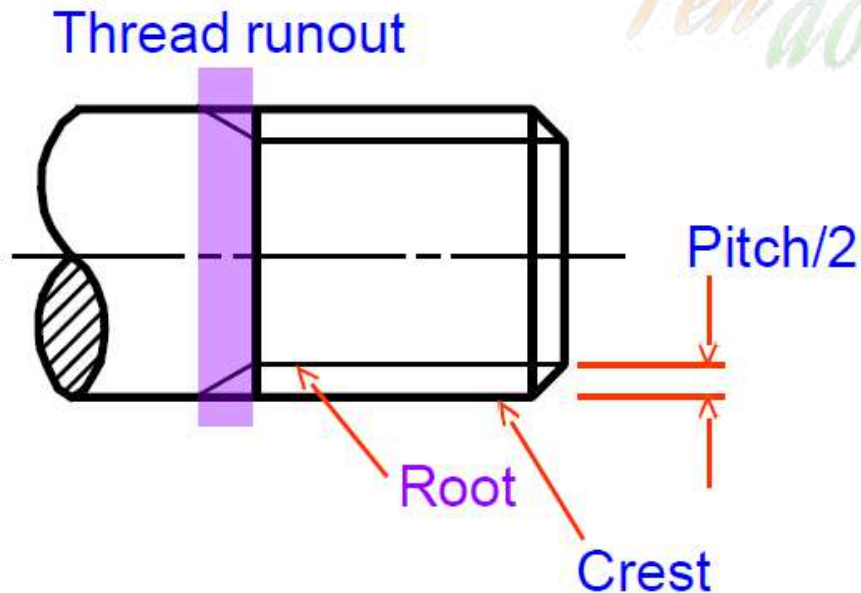
Important Note:

Simplified representation is used in the practical class

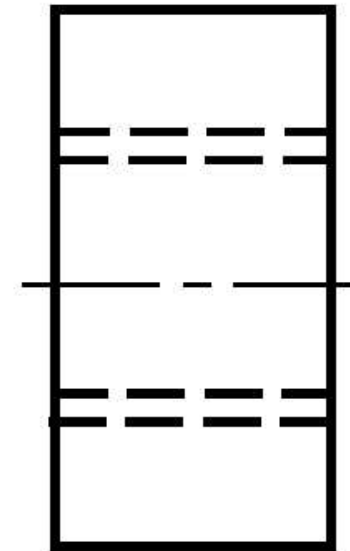
SIMPLIFIED REPRESENTATION

- Use *thick continuous lines* for representing *crest* and *thin continuous lines* for representing *root* of the thread, respectively.

External thread



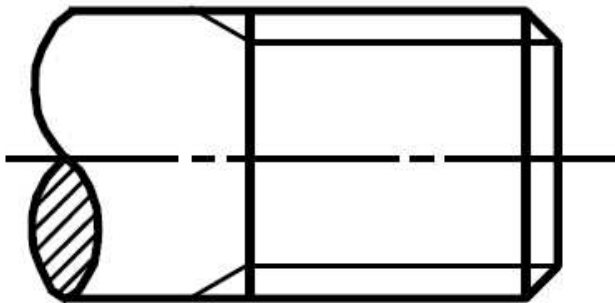
Internal thread



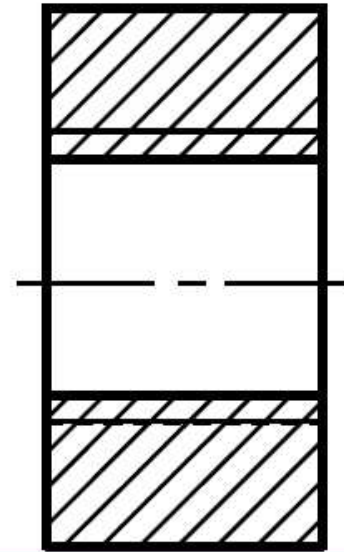
SIMPLIFIED REPRESENTATION

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External thread

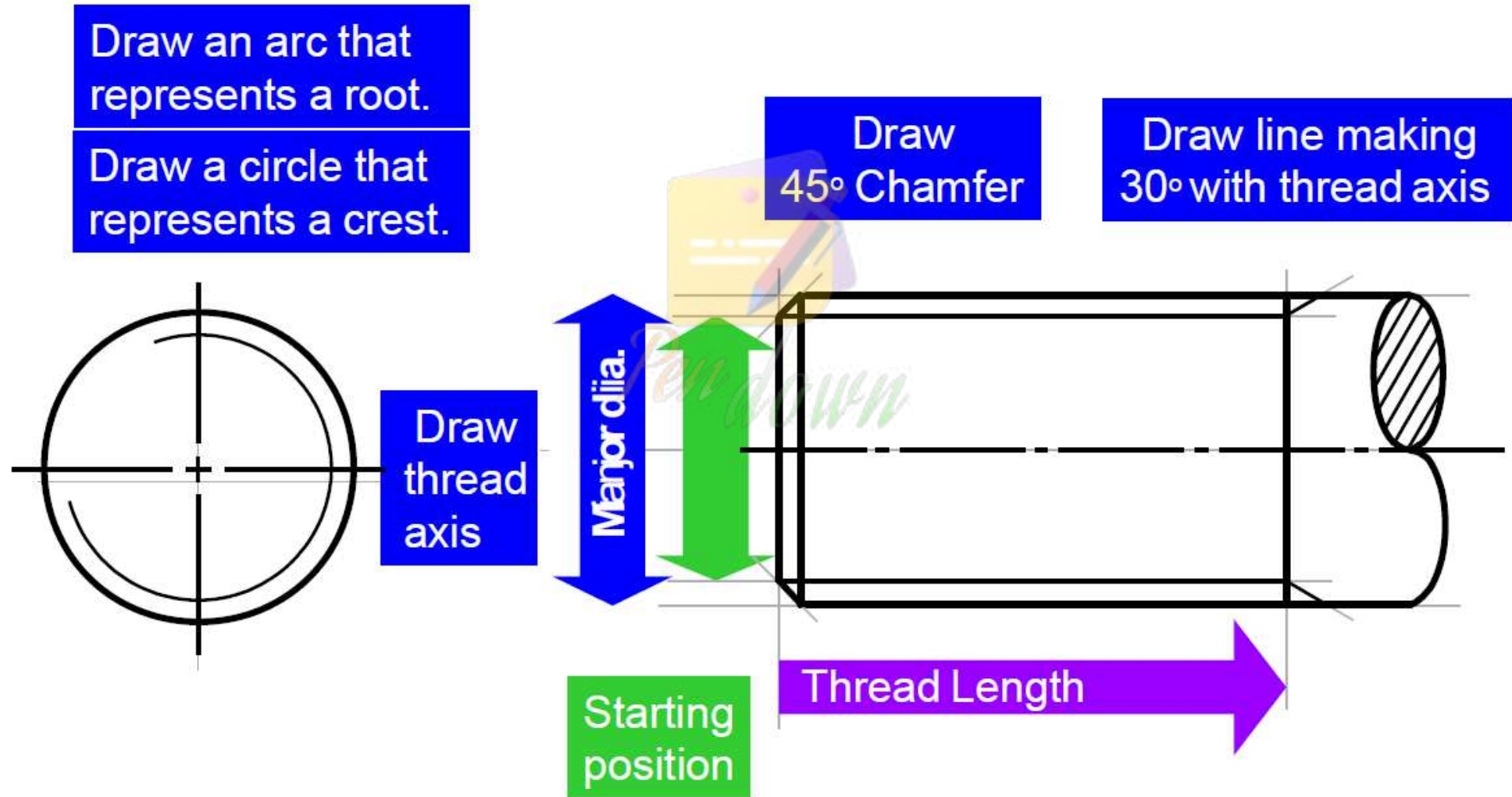


Internal thread



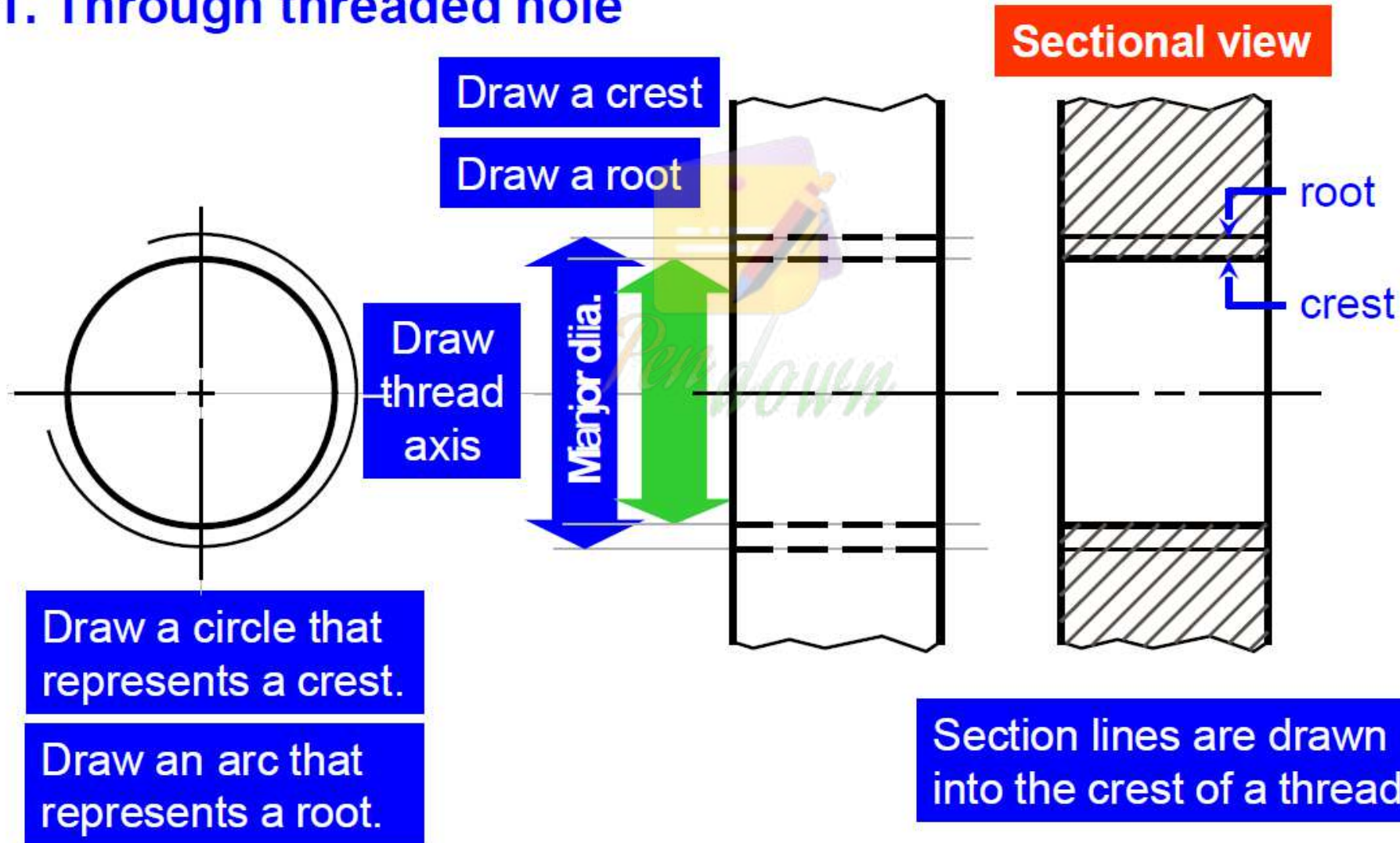
Sectional view

DRAWING STEPS OF EXTERNAL THREAD



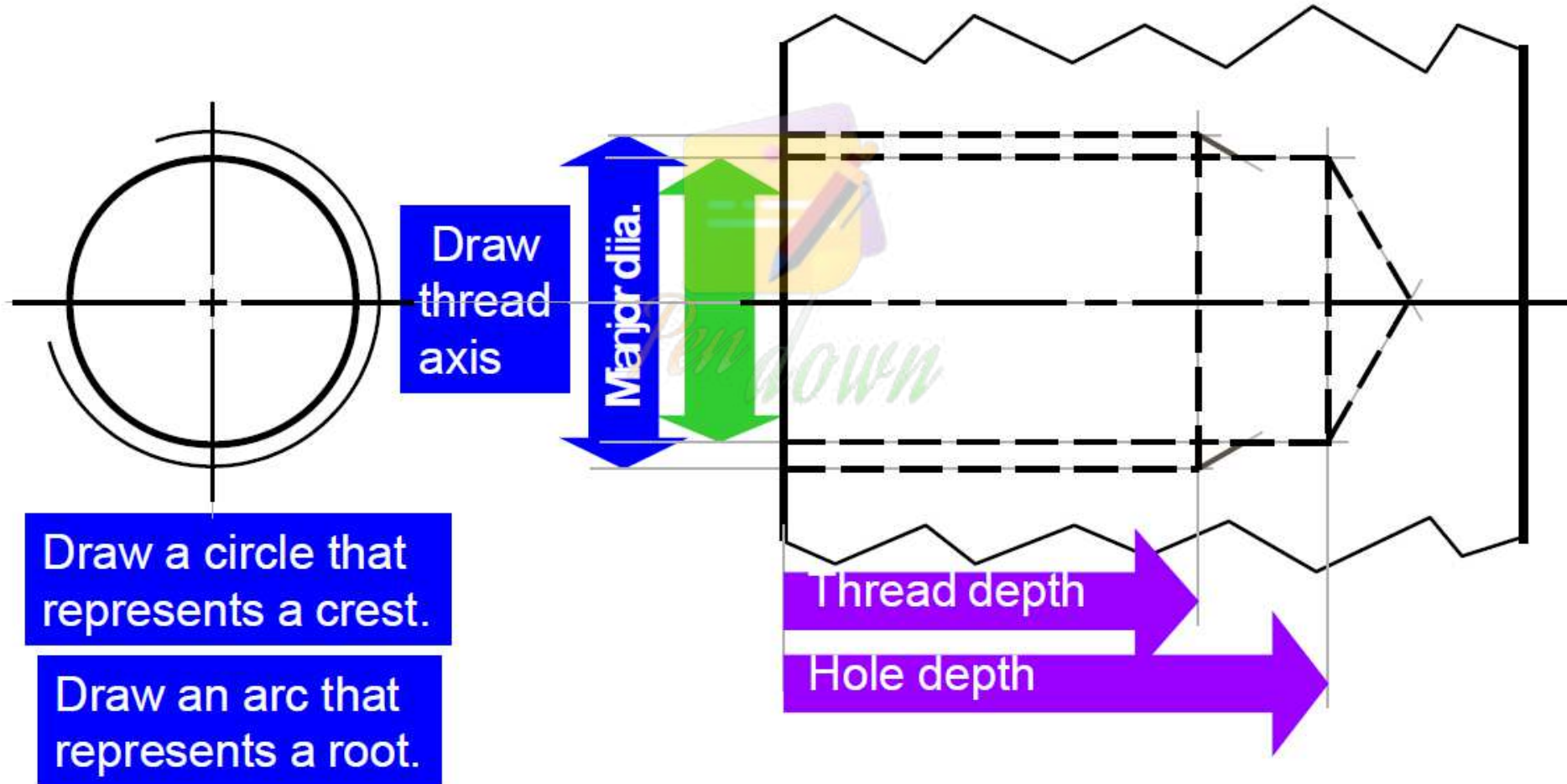
DRAWING STEPS OF THREADED HOLE

1. Through threaded hole



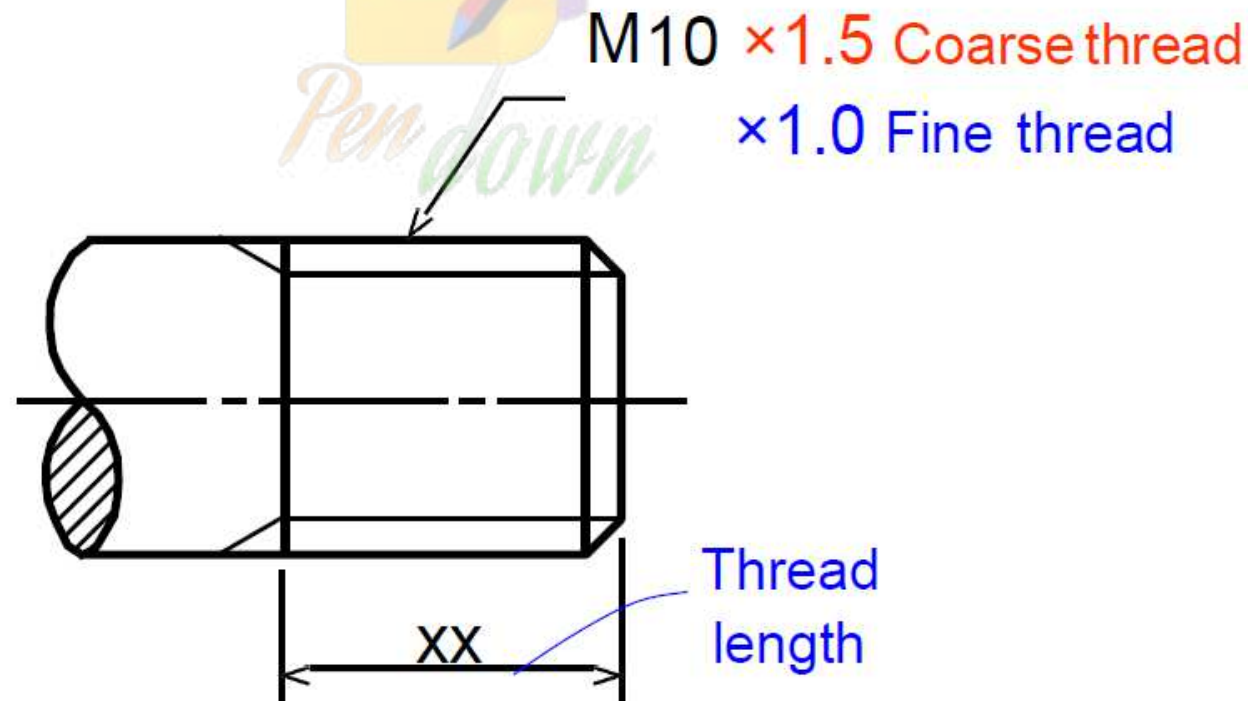
DRAWING STEPS OF THREADED HOLE

2. Blinded threaded hole



DIMENSIONING EXTERNAL THREAD

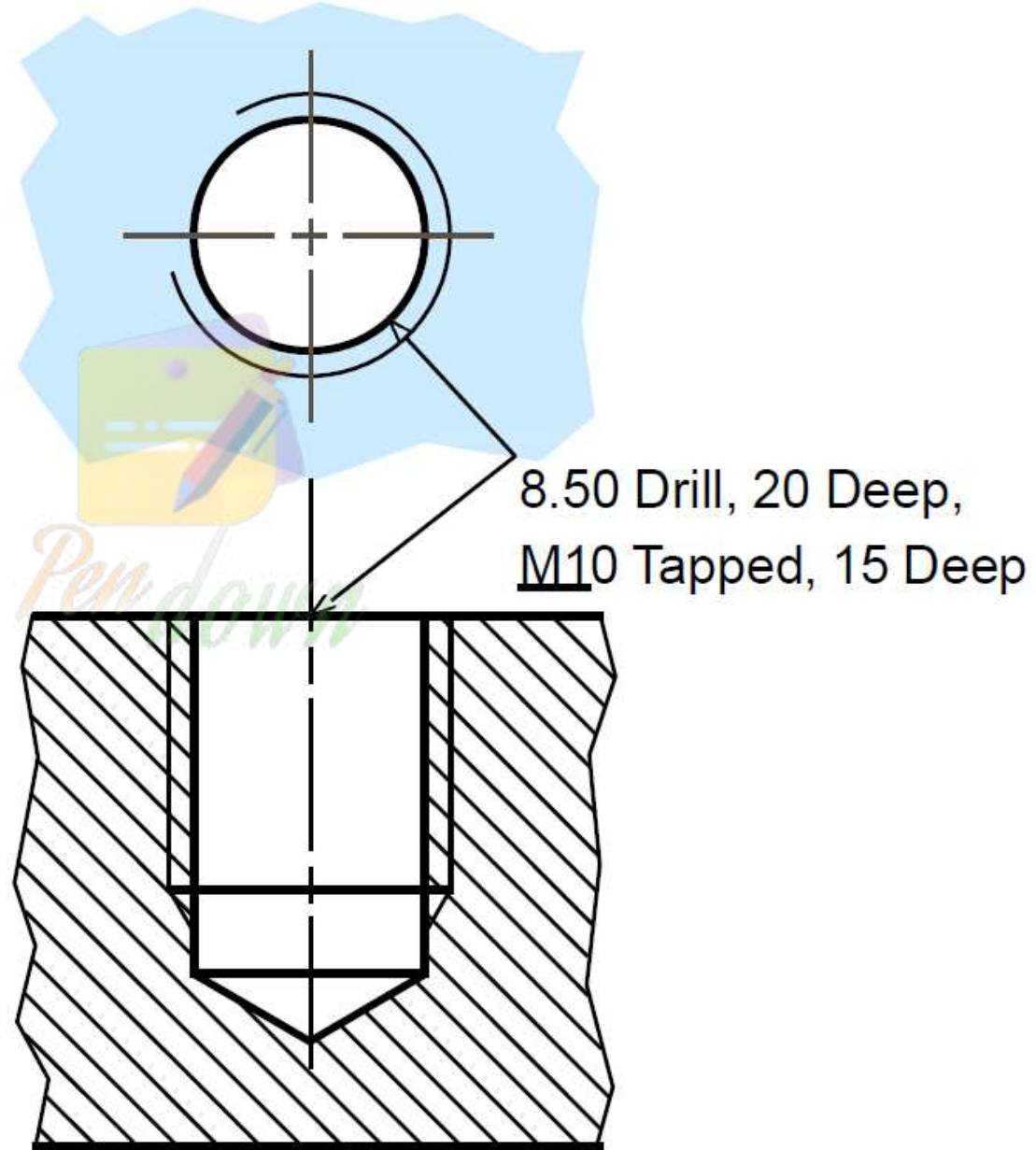
- Use *local note* to specify :- *thread form*, *nominal size*, *pitch* (if it is a fine thread)
- Use *typical method* to specify :- *thread length*.



DIMENSIONING THREADED HOLE

Use *local note* to specify

1. Tap drill size
2. Drill depth
3. Thread form
4. Nominal size
5. Pitch
6. Thread depth

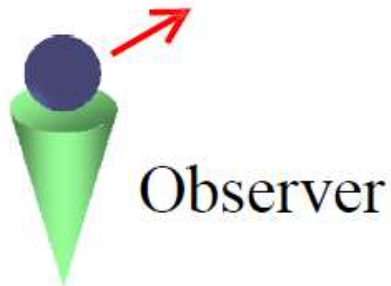


BOLT : Terminology

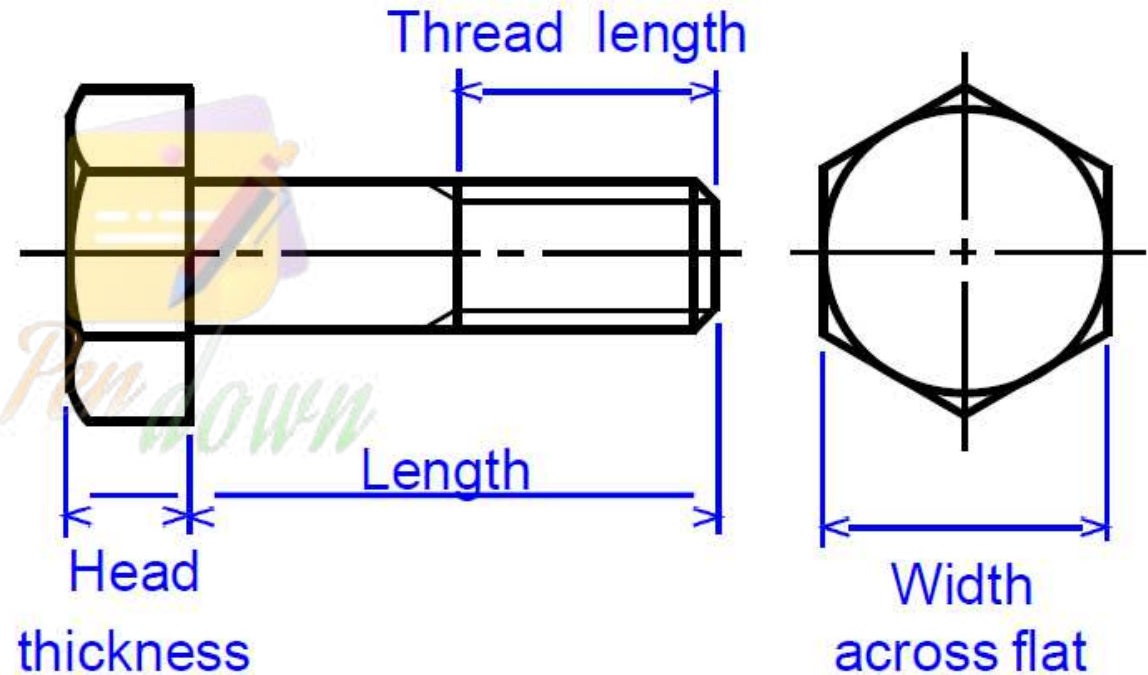
Bolt is a threaded cylinder with a head.



Hexagonal head
bolt and nut



Observer

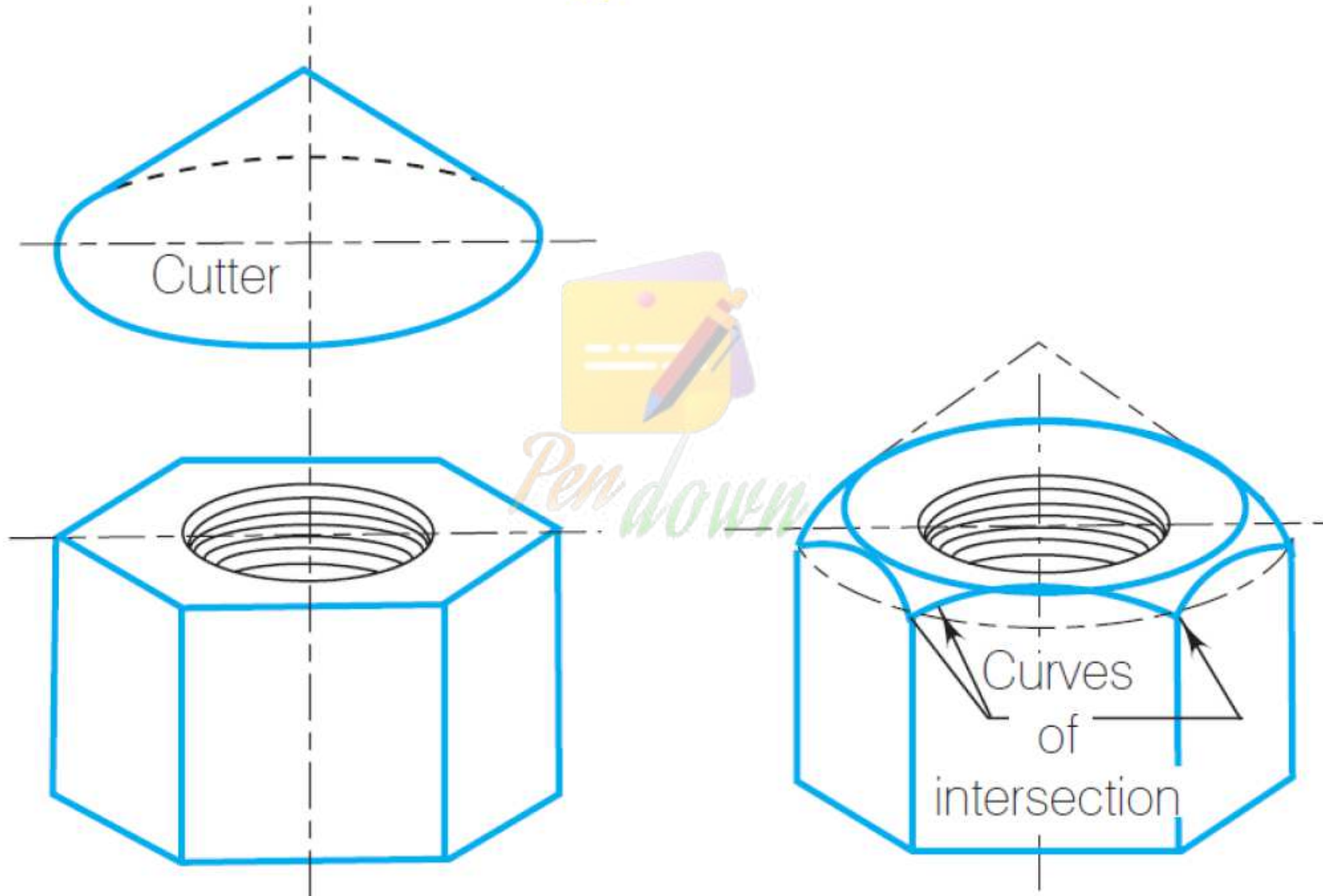


Front View

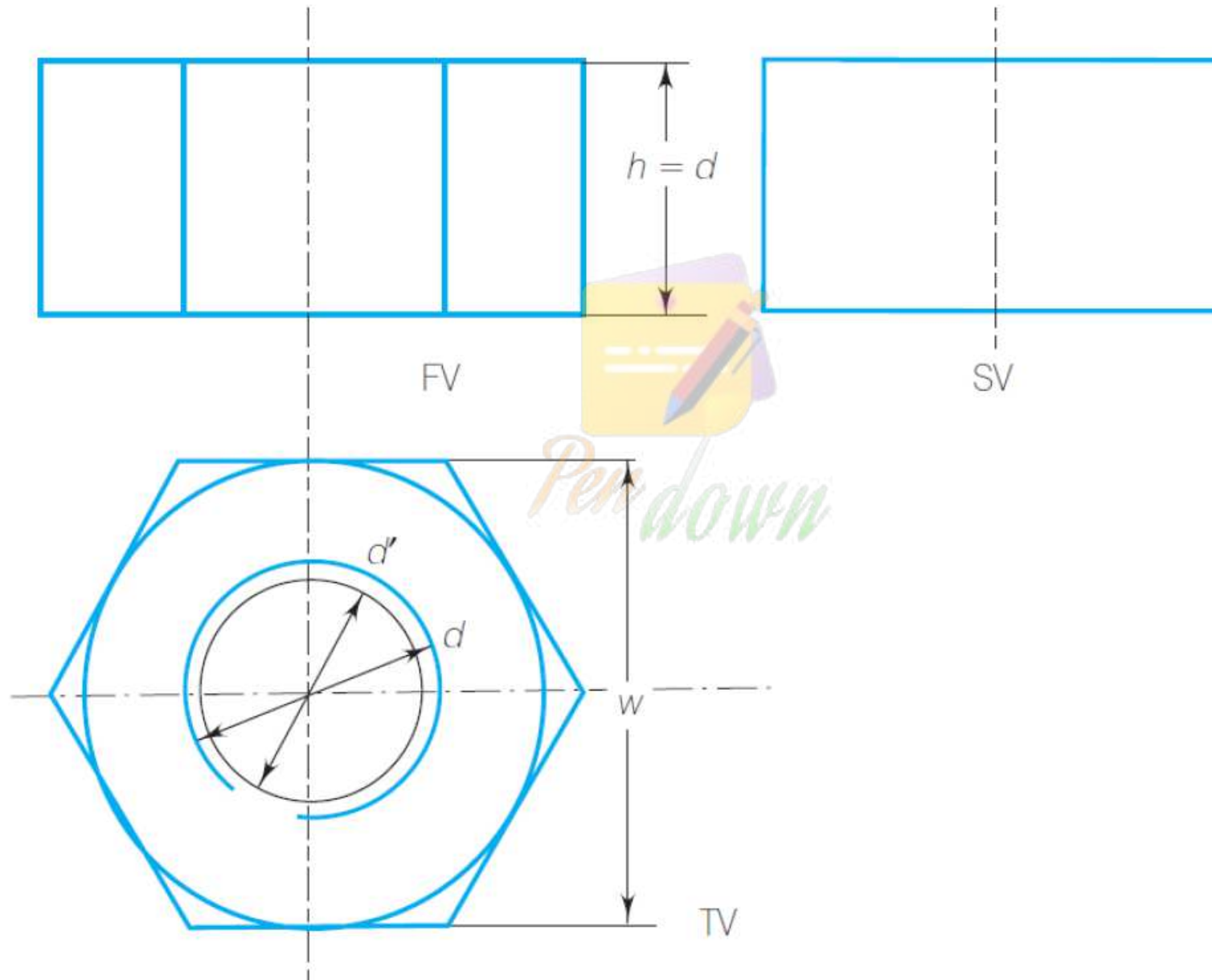
Left side View

First angle projection

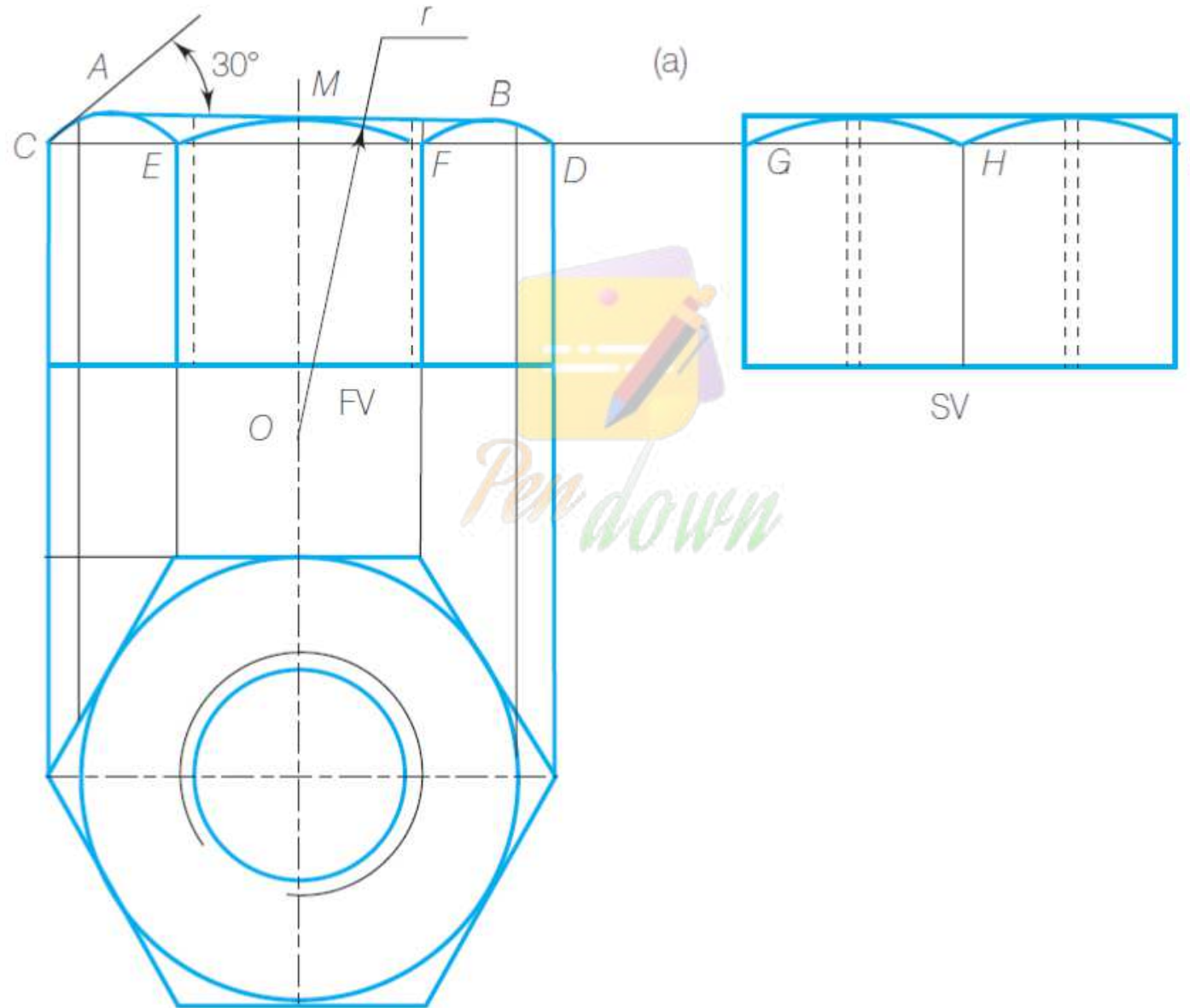
Hexagonal nut



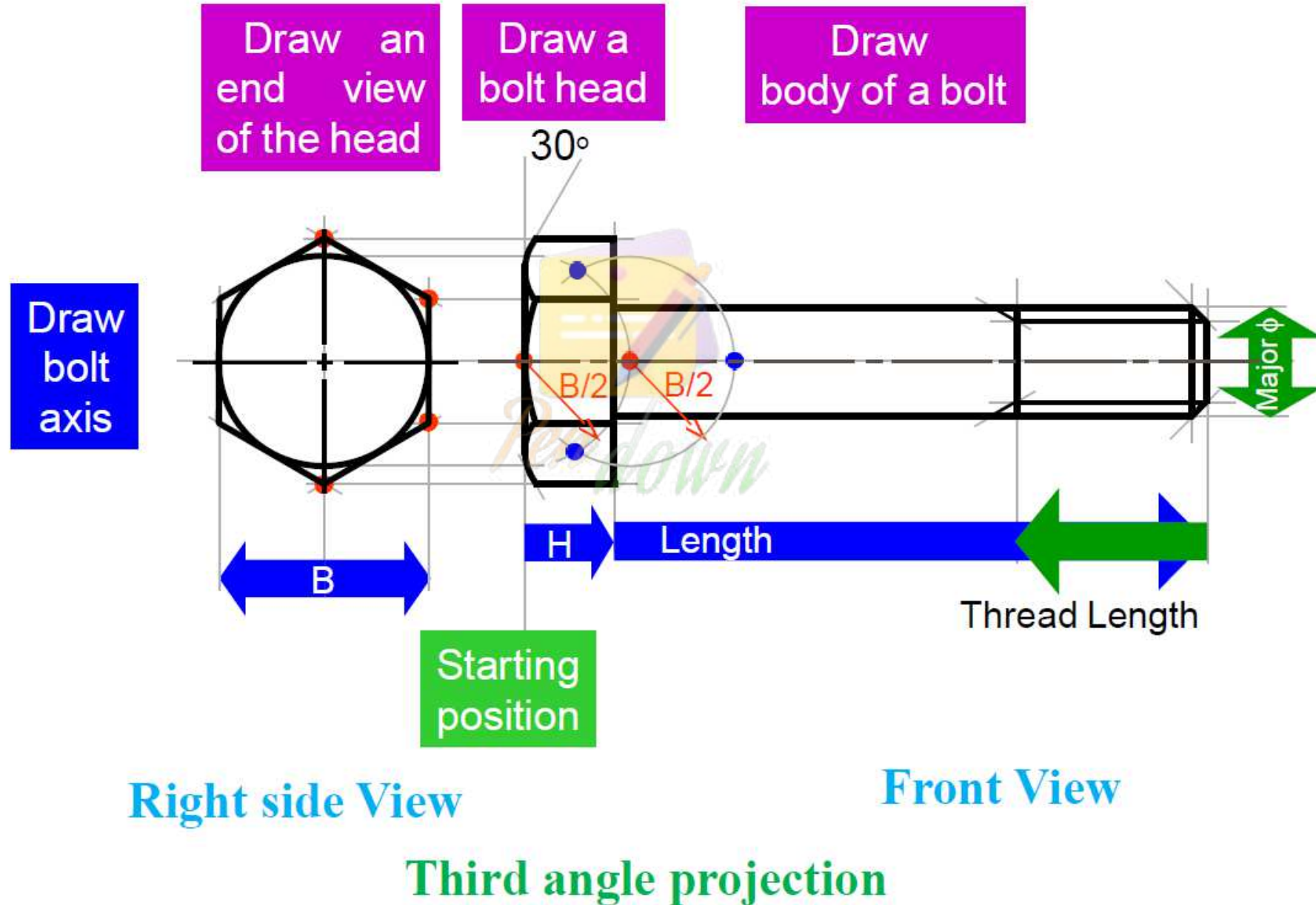
Hexagonal nut- Step 1



Hexagonal nut- Step 2



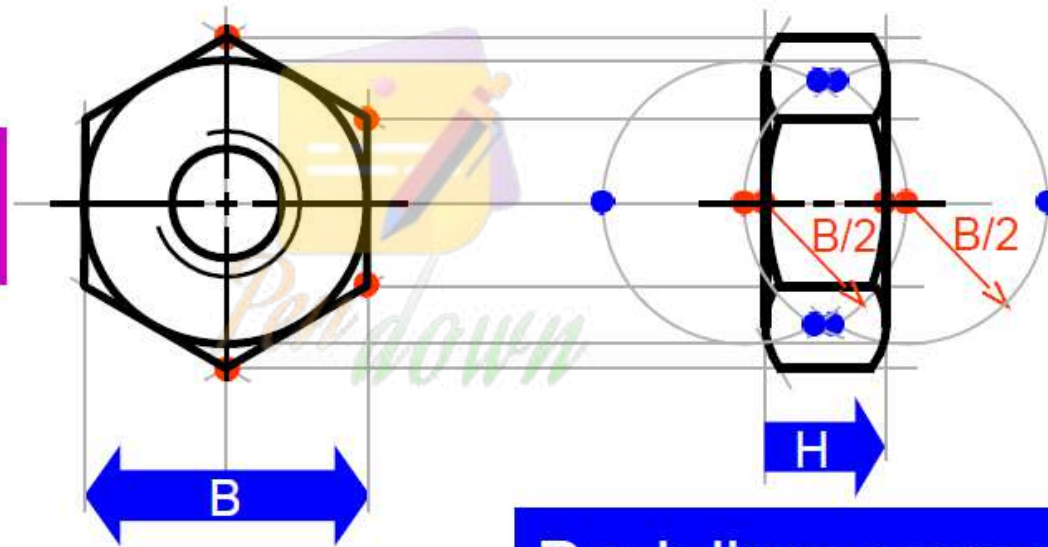
BOLT : Drawing steps



NUT : Drawing steps

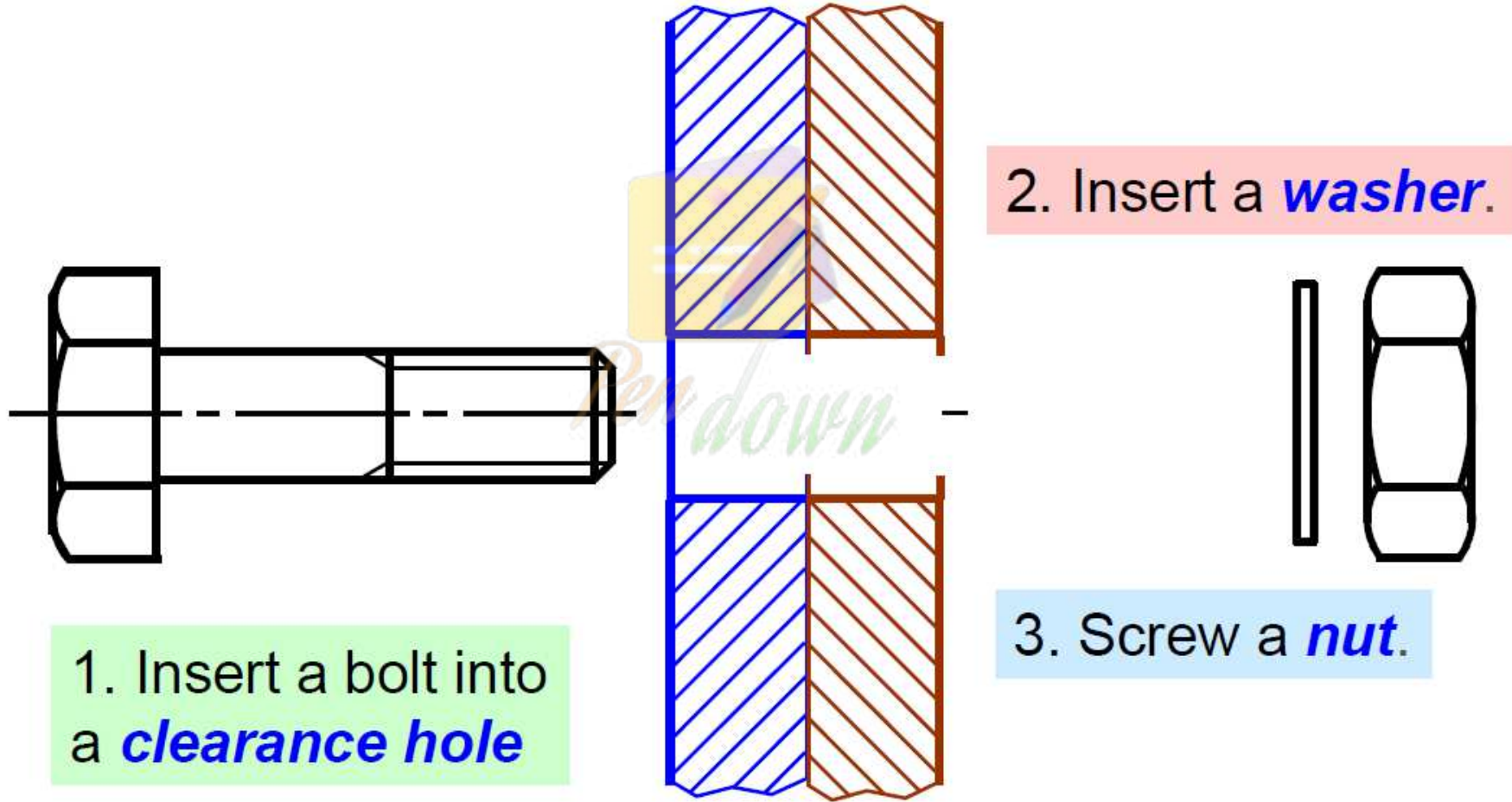
Dimensions of the nut are given in Table 9.14.

Draw an end view
of the nut

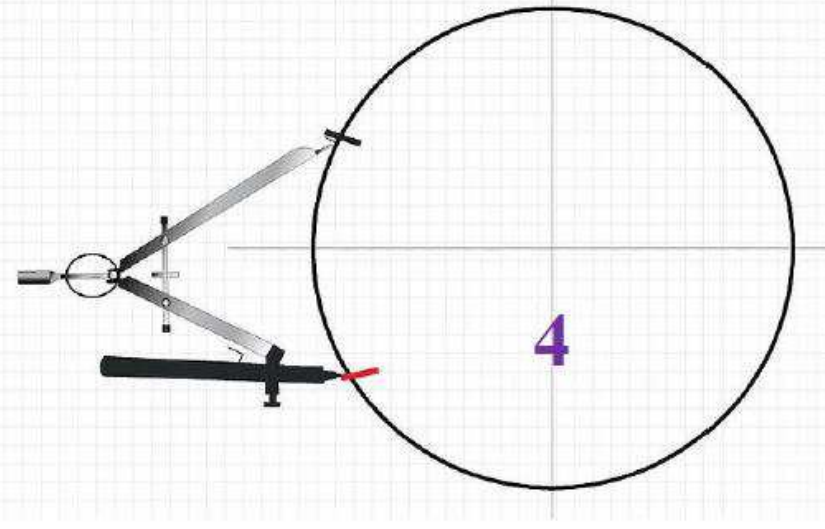
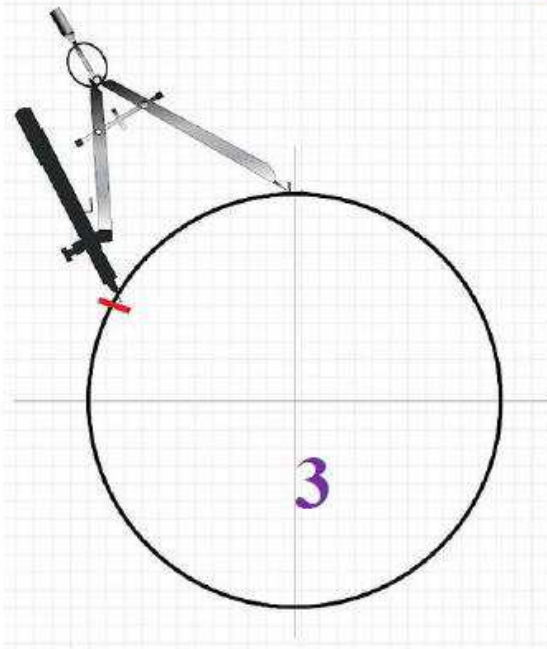
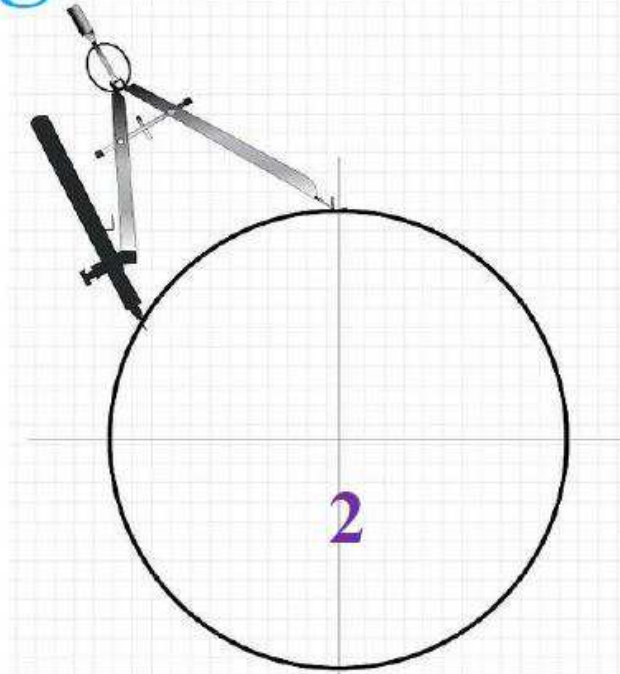


Dash lines represent
a threaded hole are
omitted for clarity.

BOLT : Application

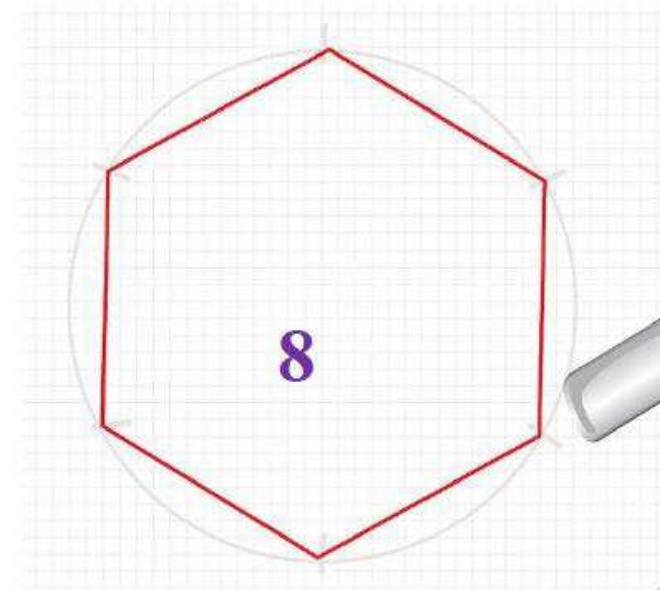
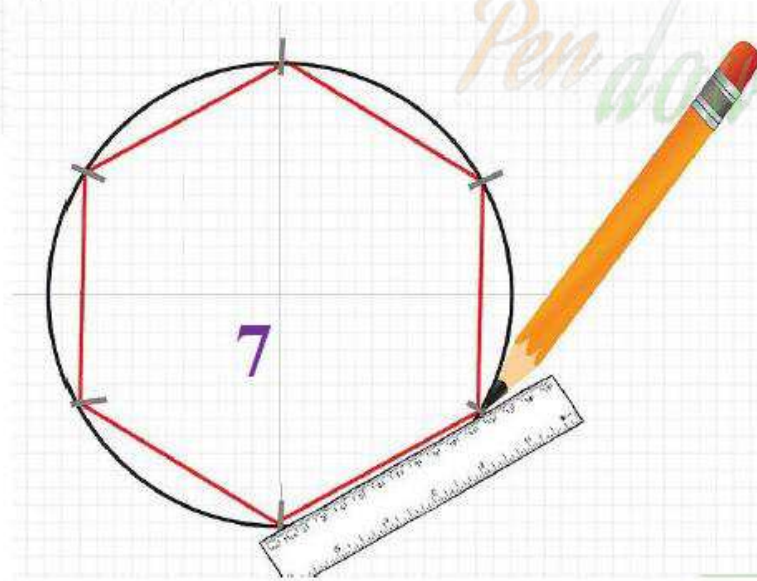
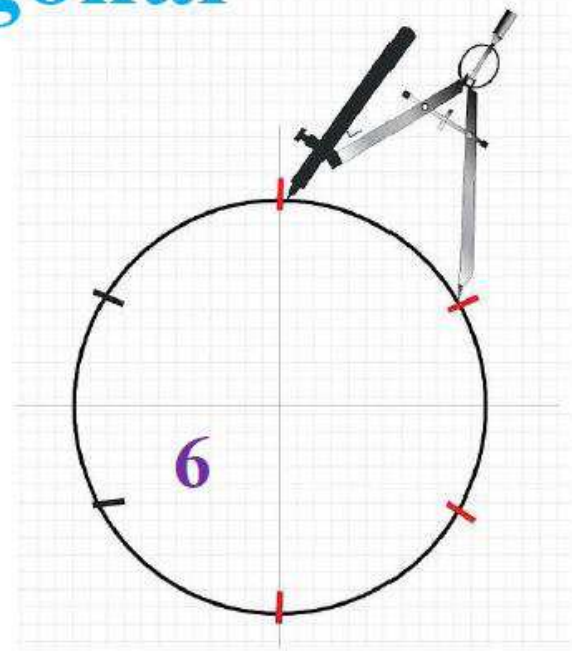
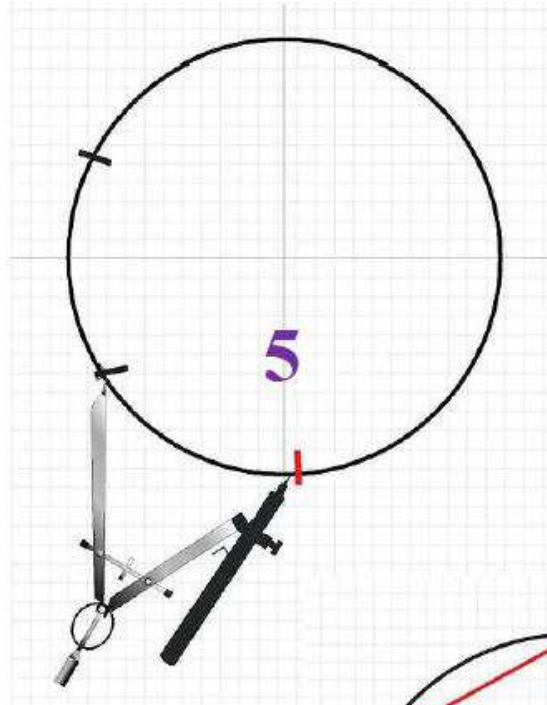


Drawing steps of Hexagonal of K. J.

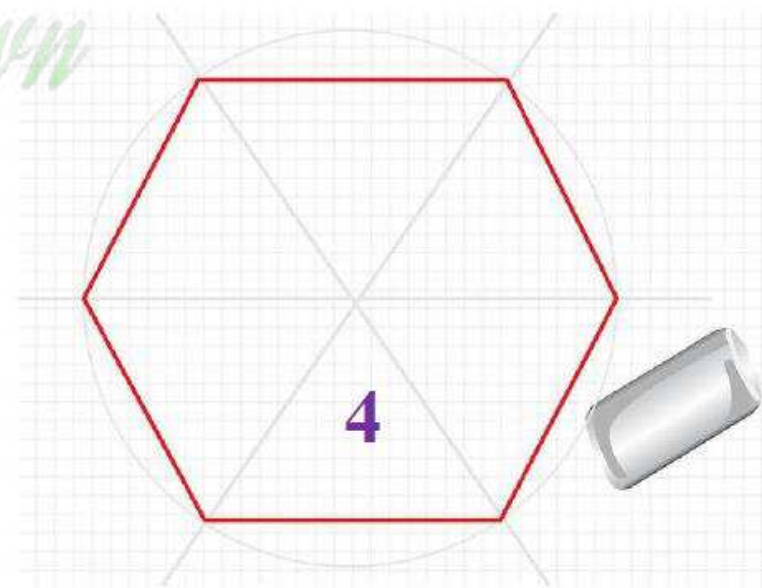
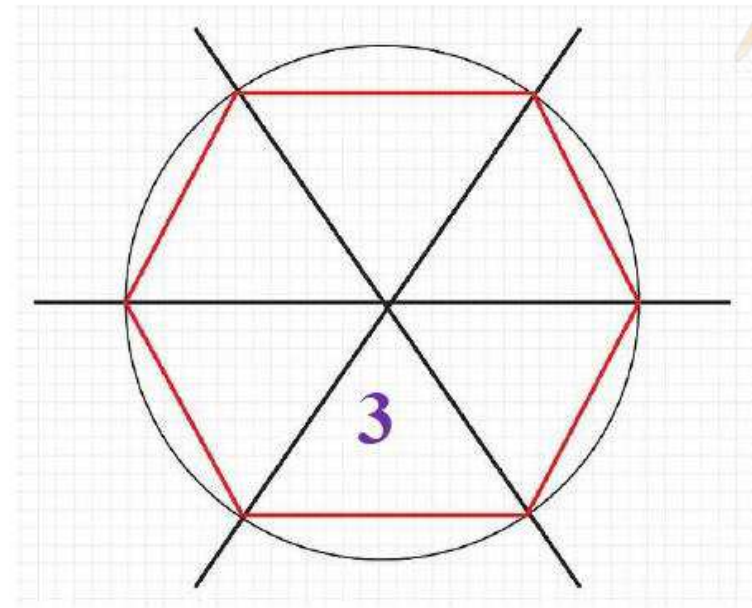
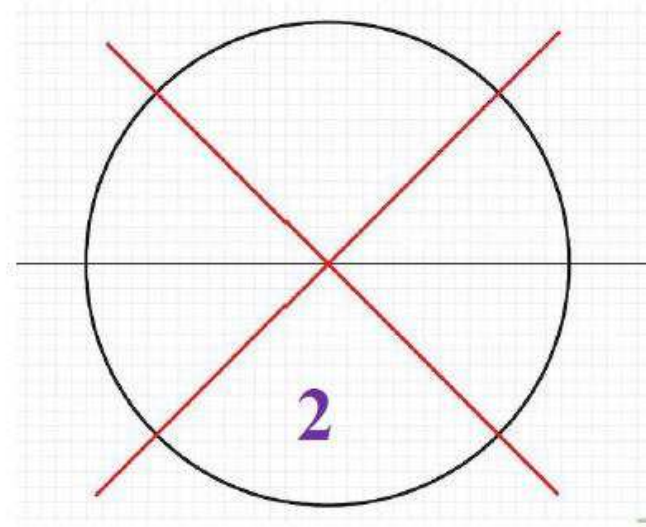
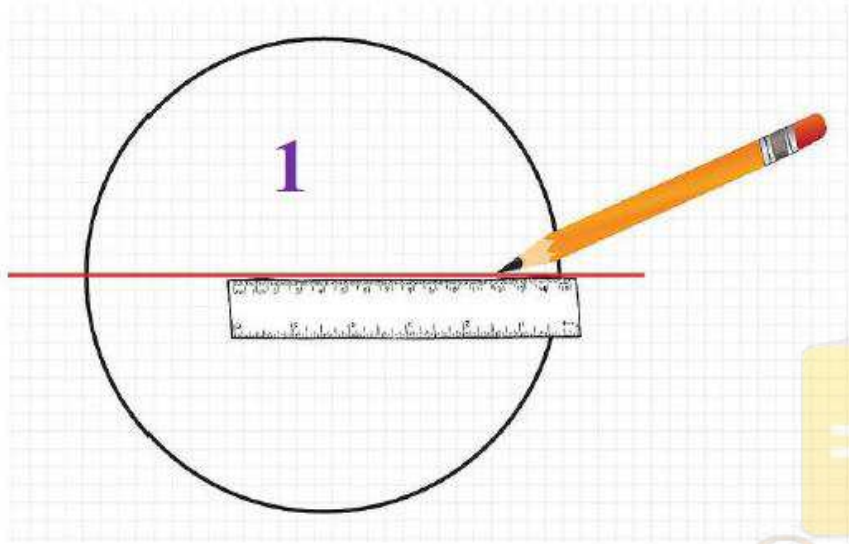


Pen down

Draw steps of Hexagonal



Other method -Steps of Hexagonal



Pen down

DIMENSIONING THREADED HOLE

Use *local note* to specify

1. Tap drill size
2. Drill depth
3. Thread form
4. Nominal size
5. Pitch
6. Thread depth

