

# Principles of plane Surveying laboratory

## Surveying Tools and Instrument

By

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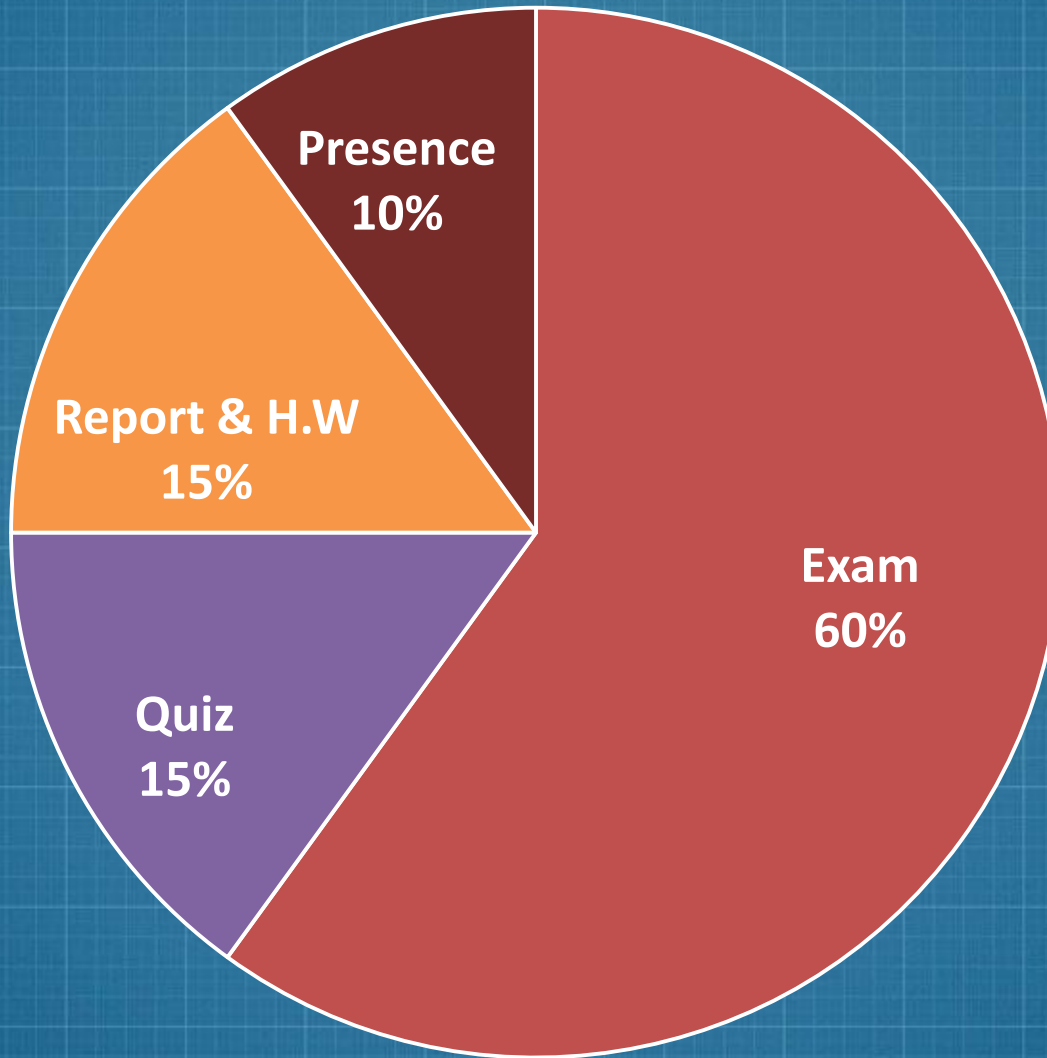
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# Marks Division





# الادوات والاجهزة المساحية

Linear Measurement

• الادوات المستخدمة لقياس الطول

Direction Measurement

• الاجهزة المستخدمة لقياس الاتجاهات

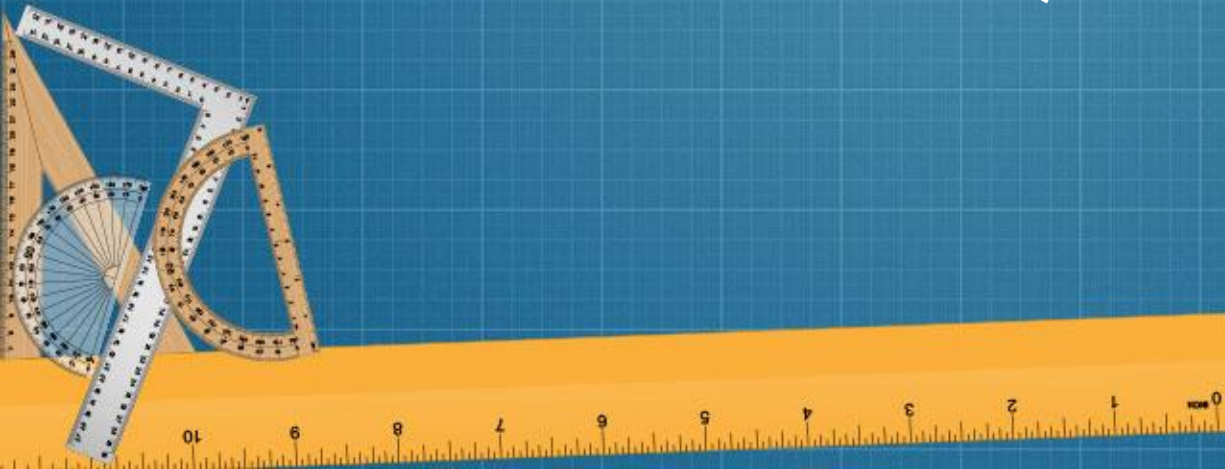
Leveling

• الاجهزة المستخدمة لقياس الارتفاعات

Angle Measurement

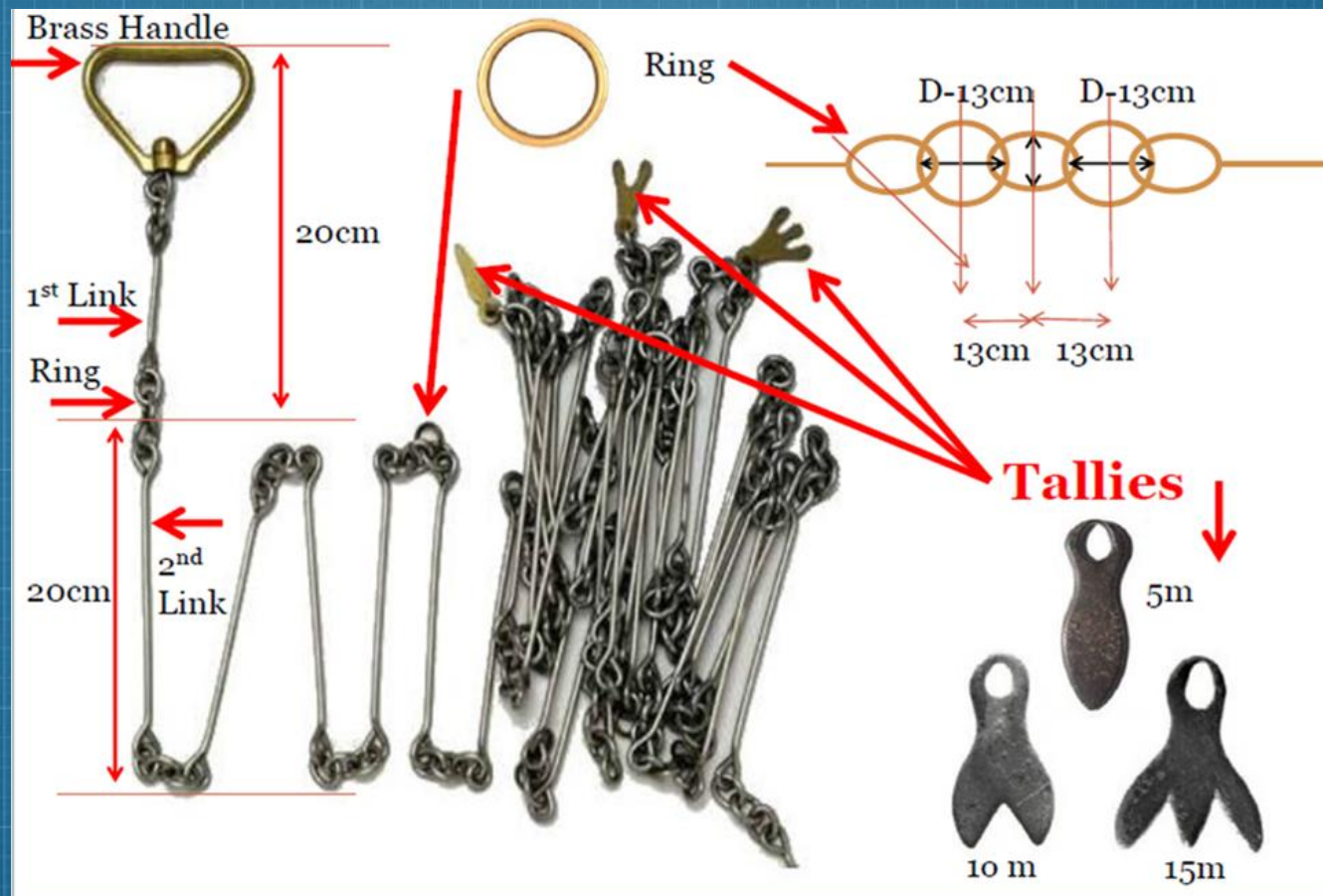
• الاجهزة المستخدمة لقياس الزوايا

Coordination Measurement • الاجهزة المستخدمة لقياس الاحداثيات



# Linear Measurement

## A.Chain





# Linear Measurement

## B. Tape



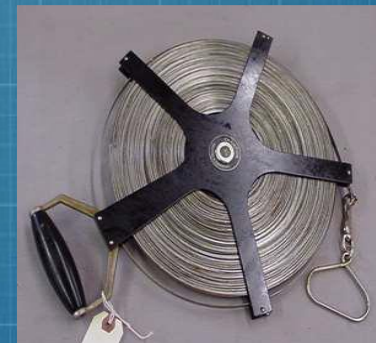
Cloth Tape



Metallic Tape



Steel Tape



Invar tape

# Linear Measurement

## C. Measuring Wheel





# Linear Measurement

## D. Electronic Distance Measurement (Disto)

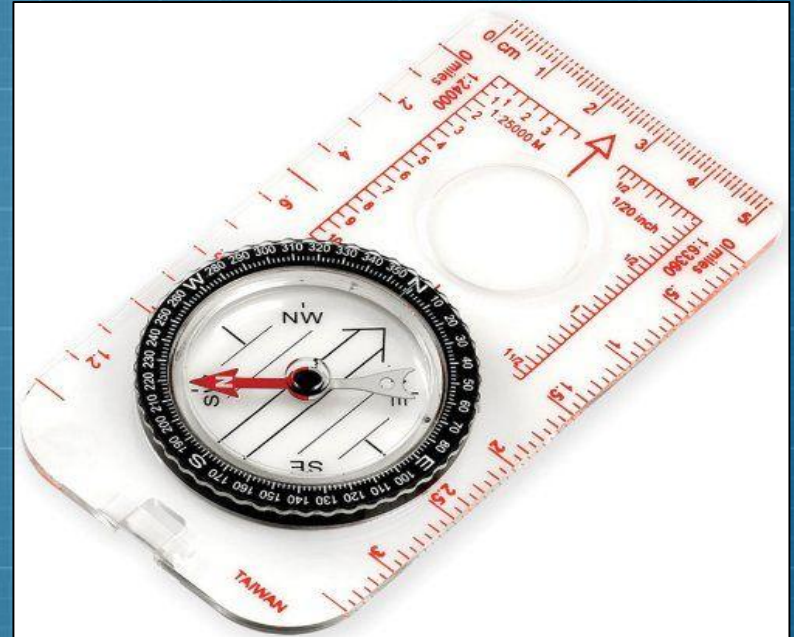


# Direction Measurement

## Compass



Brunton Compass



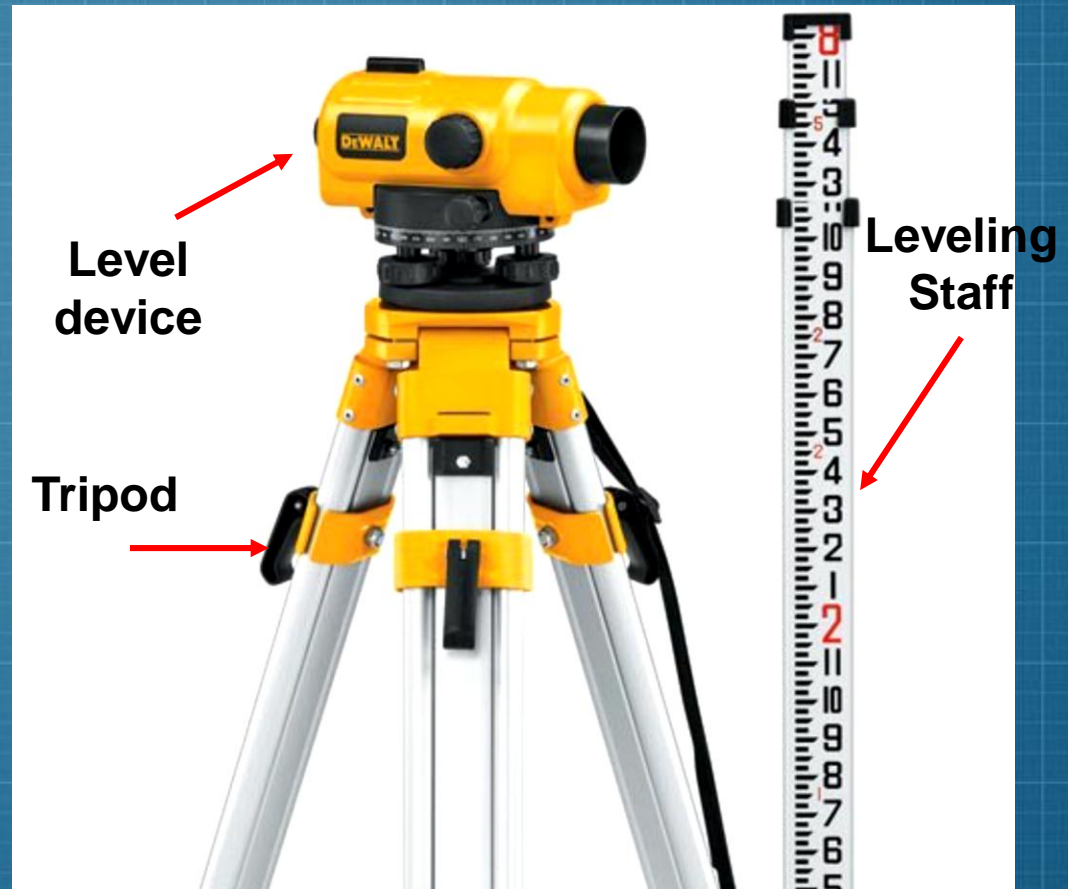
Silva Compass



# Levelling

## Level Instrument

1. Level device
2. Leveling Staff
3. Tripod



# Angle Measurement

## Theodolite

1. Theodolite device
2. Prism
3. Tripod





# Coordination Measurement

1. total station
2. GPS
3. Differential GPS

