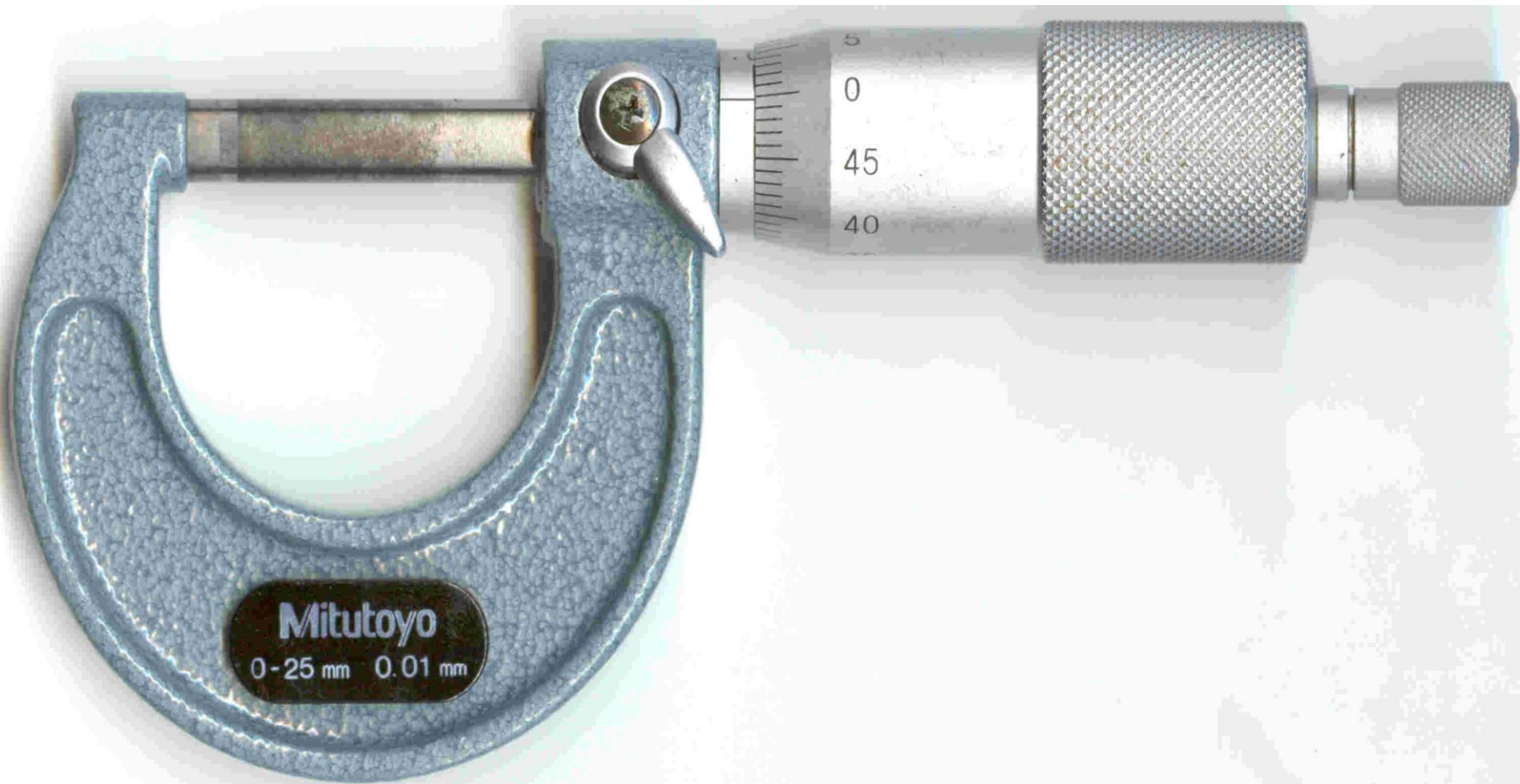


Reading Measurement in Physics

MICROMETER CALIPER

Objectives

- enumerate the parts and uses of a micrometer caliper
- measure the length, thickness and dimensions of an object up to 0.001 mm
- read and record measurements from the micrometer caliper correctly



spindle

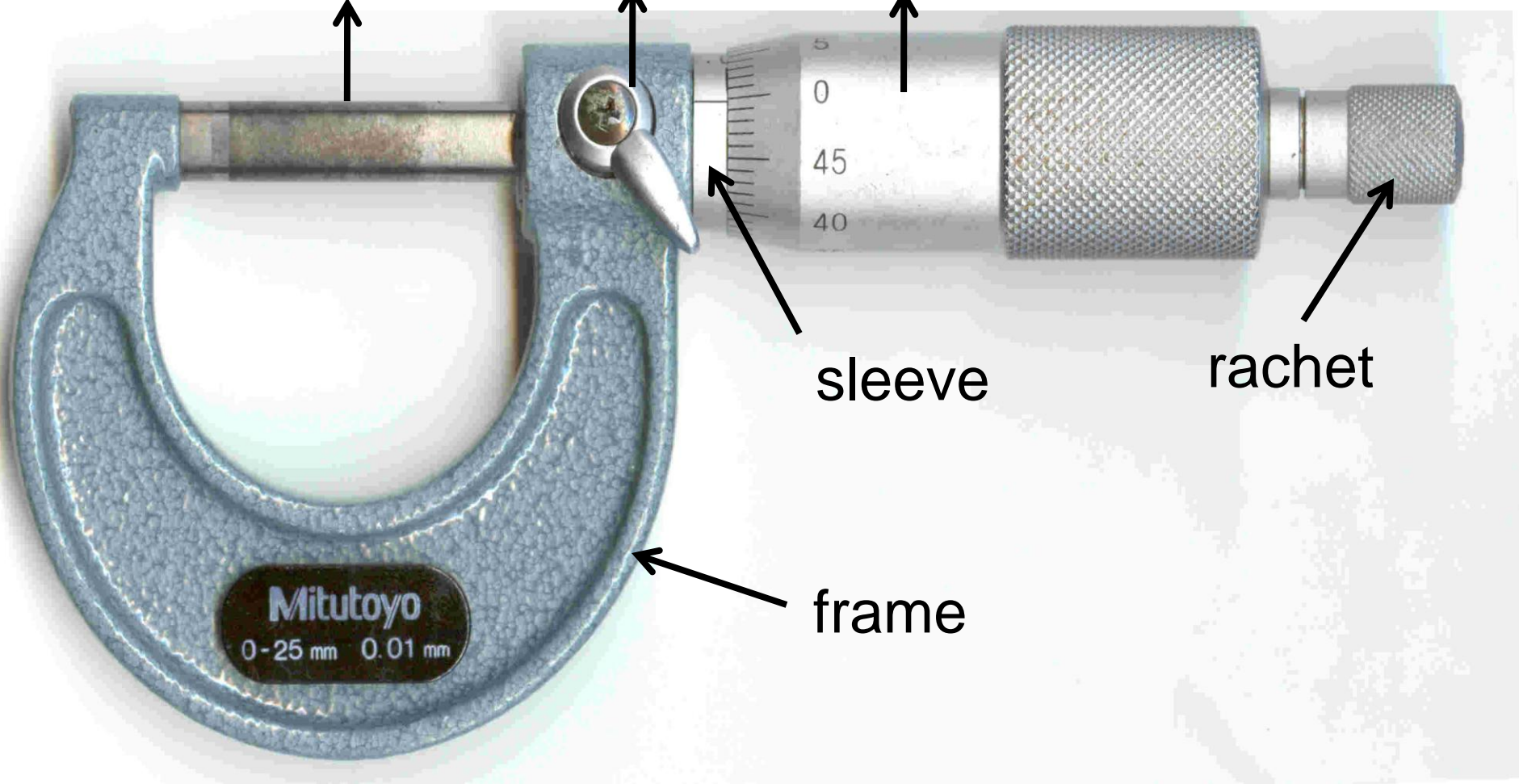
lock

thimble

sleeve

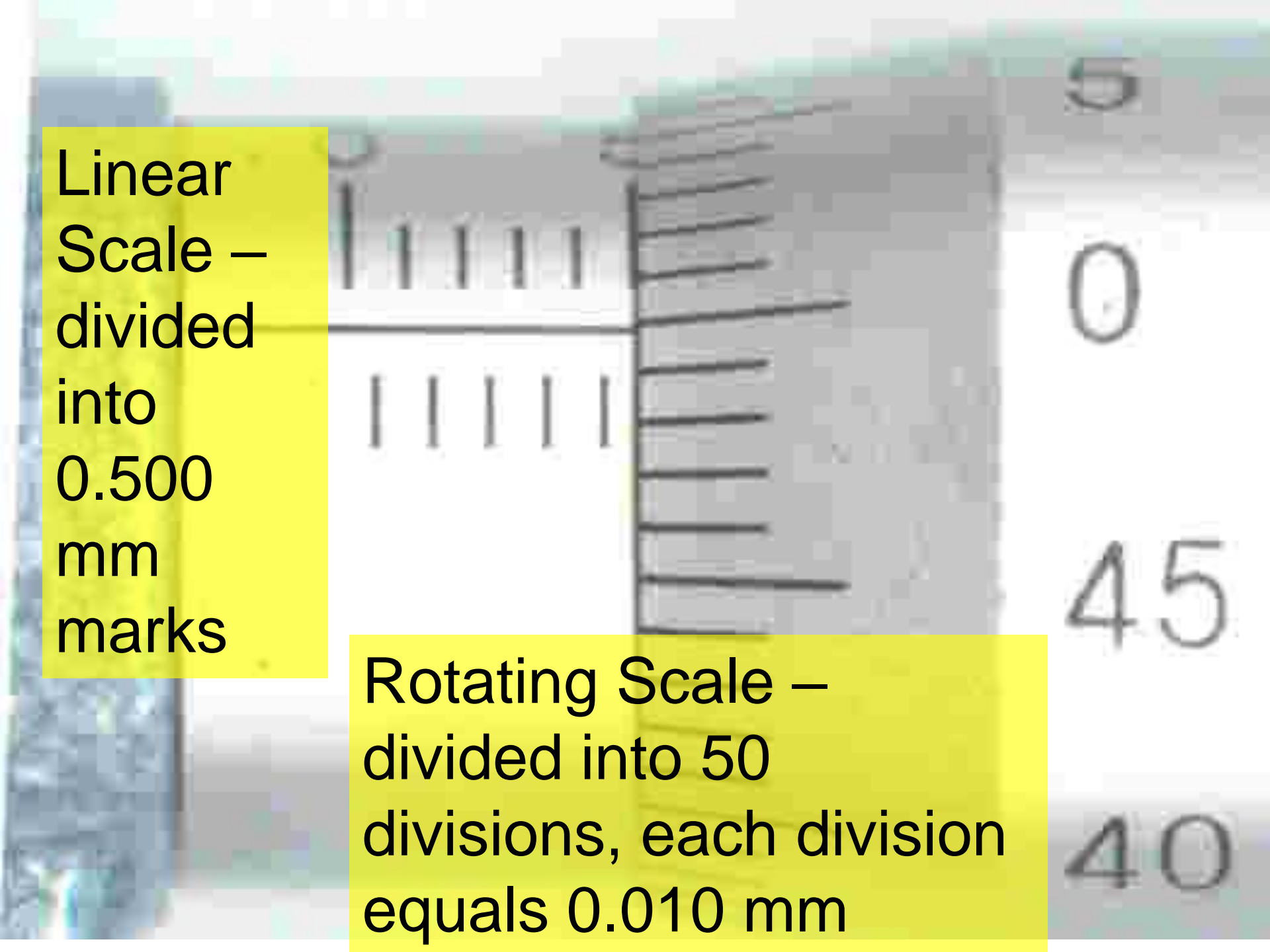
ratchet

frame



The Micrometer

- The micrometer has two scales.
- A linear scale which is divided into 0.500 mm marks
- A rotating scale with 50 divisions, each division equal to 0.010 mm.
- Every complete revolution of the rotating scale advances or closes the linear scale by 0.500 mm.
- The micrometer works like a clock. Every complete revolution of the minute hand (covering 12 numbers) advances the hour hand by one number.

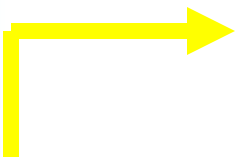


The image shows a close-up of a vernier caliper's scale. On the left, a yellow box contains text describing the linear scale. On the right, another yellow box contains text describing the rotating scale. The background shows the actual scales: a linear scale with millimeter markings and a rotating scale with 50 divisions. The linear scale has markings for 0, 1, 2, 3, 4, and 5 mm. The rotating scale has markings for 0, 45, and 40. The rotating scale is currently aligned with the 0 mark on the linear scale.

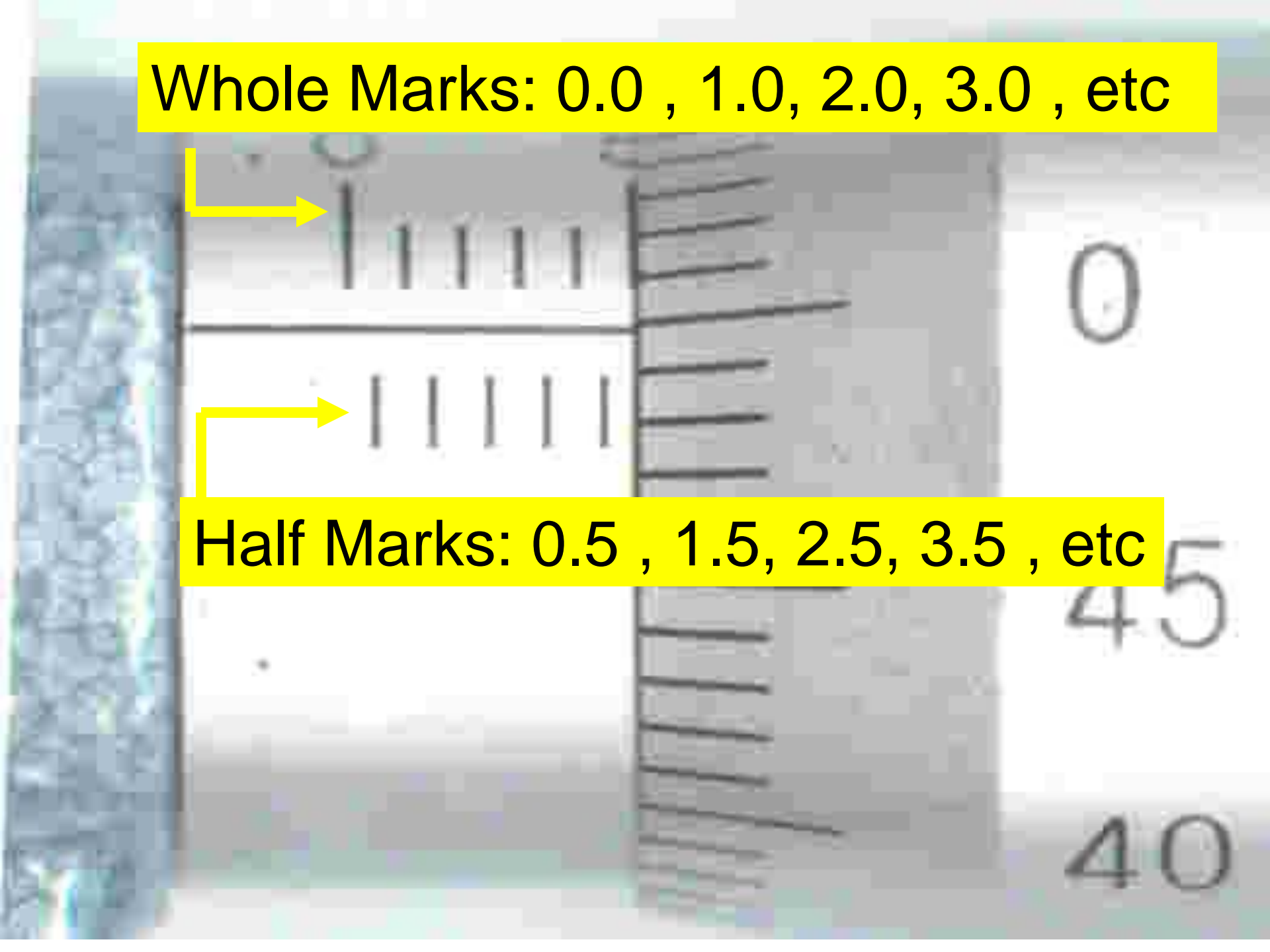
Linear
Scale –
divided
into
0.500
mm
marks

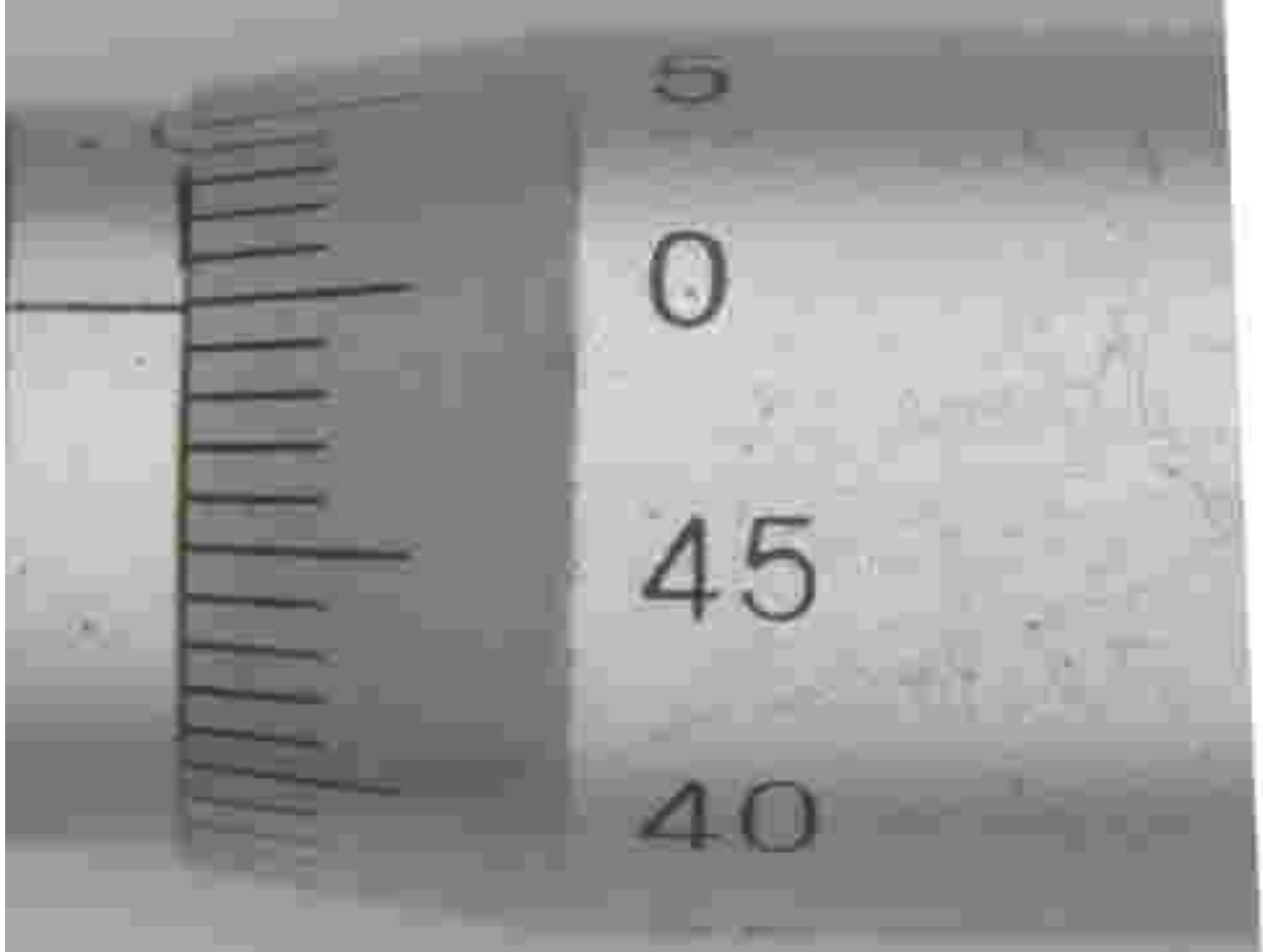
Rotating Scale –
divided into 50
divisions, each division
equals 0.010 mm

Whole Marks: 0.0 , 1.0, 2.0, 3.0 , etc

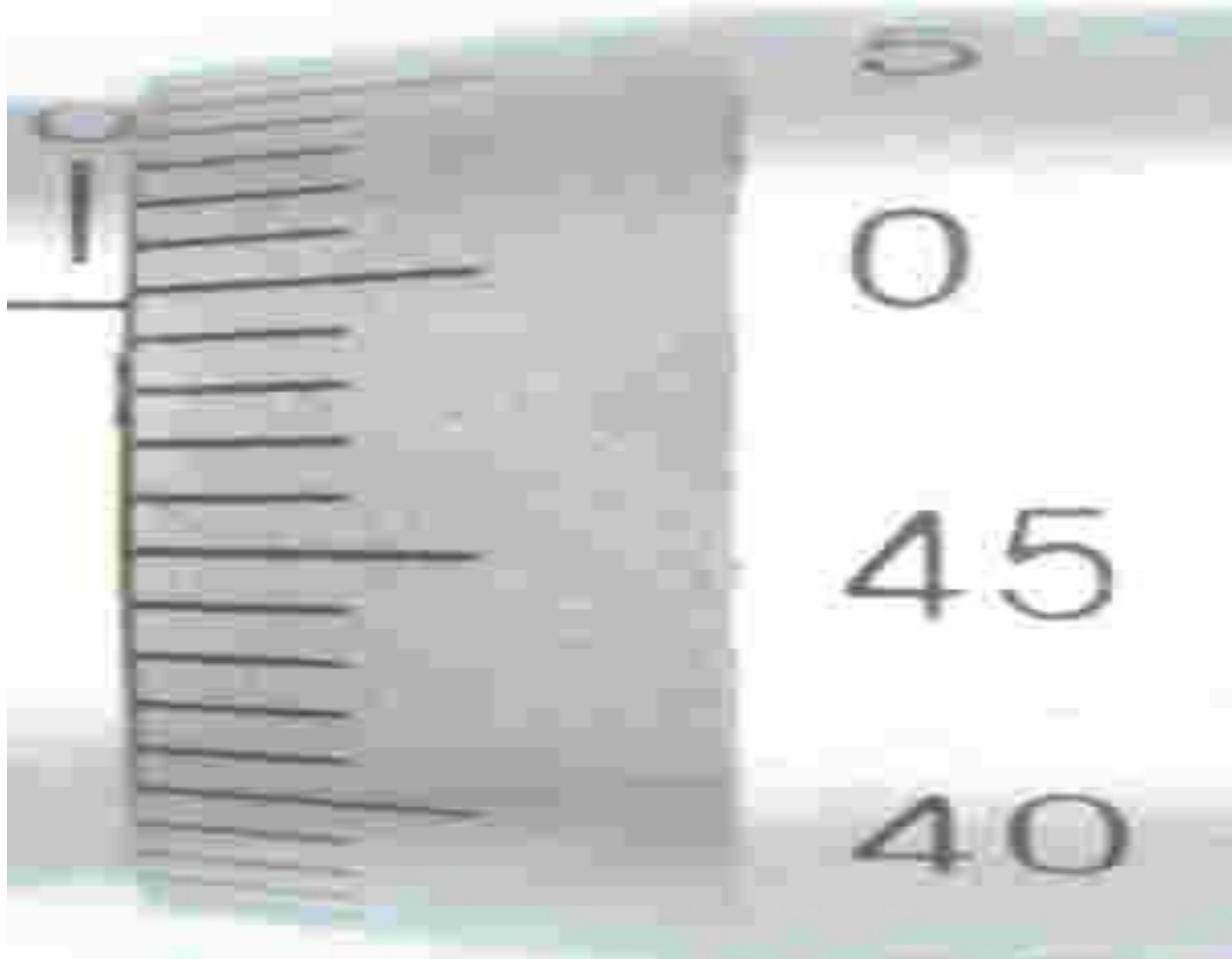


Half Marks: 0.5 , 1.5, 2.5, 3.5 , etc

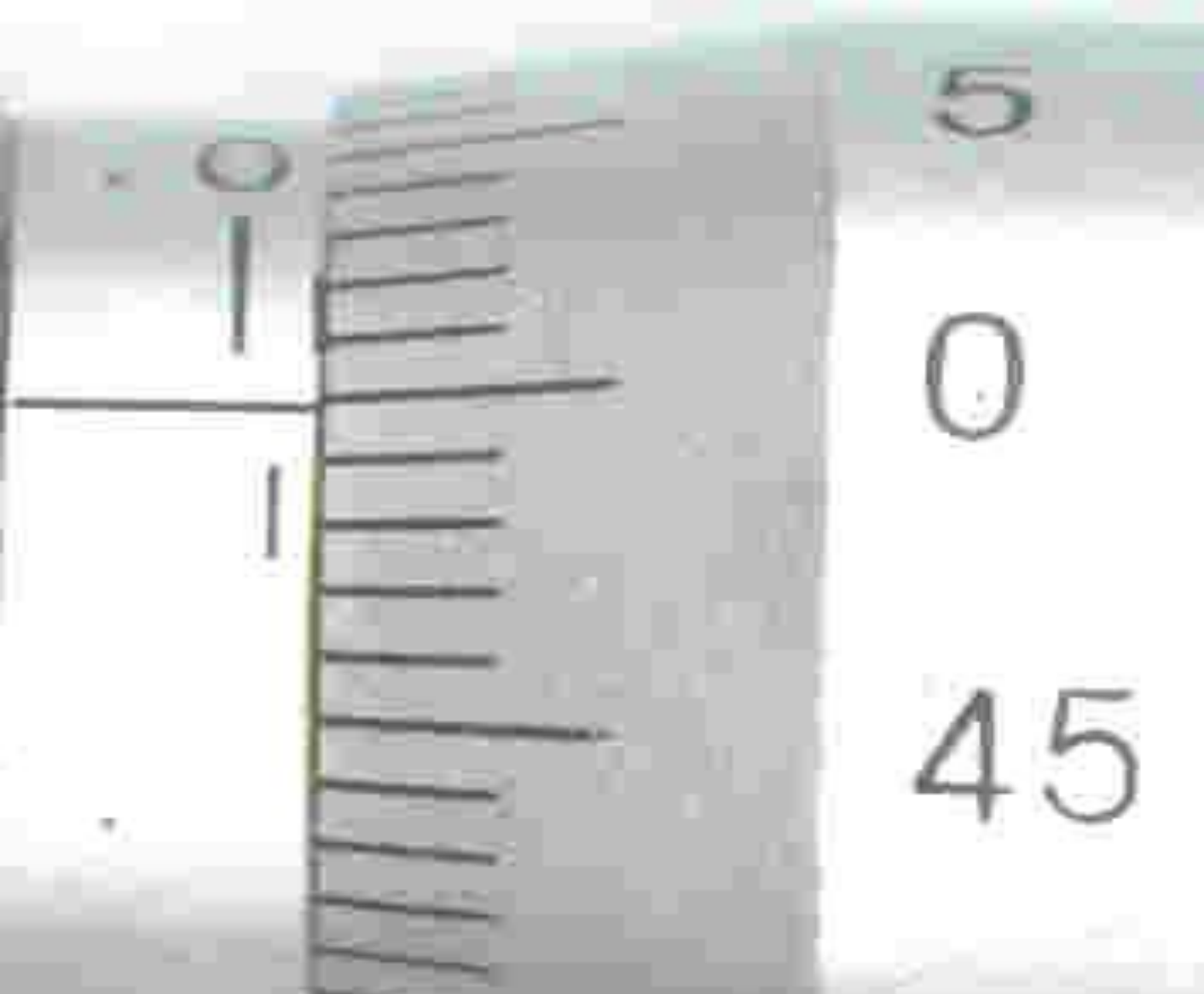




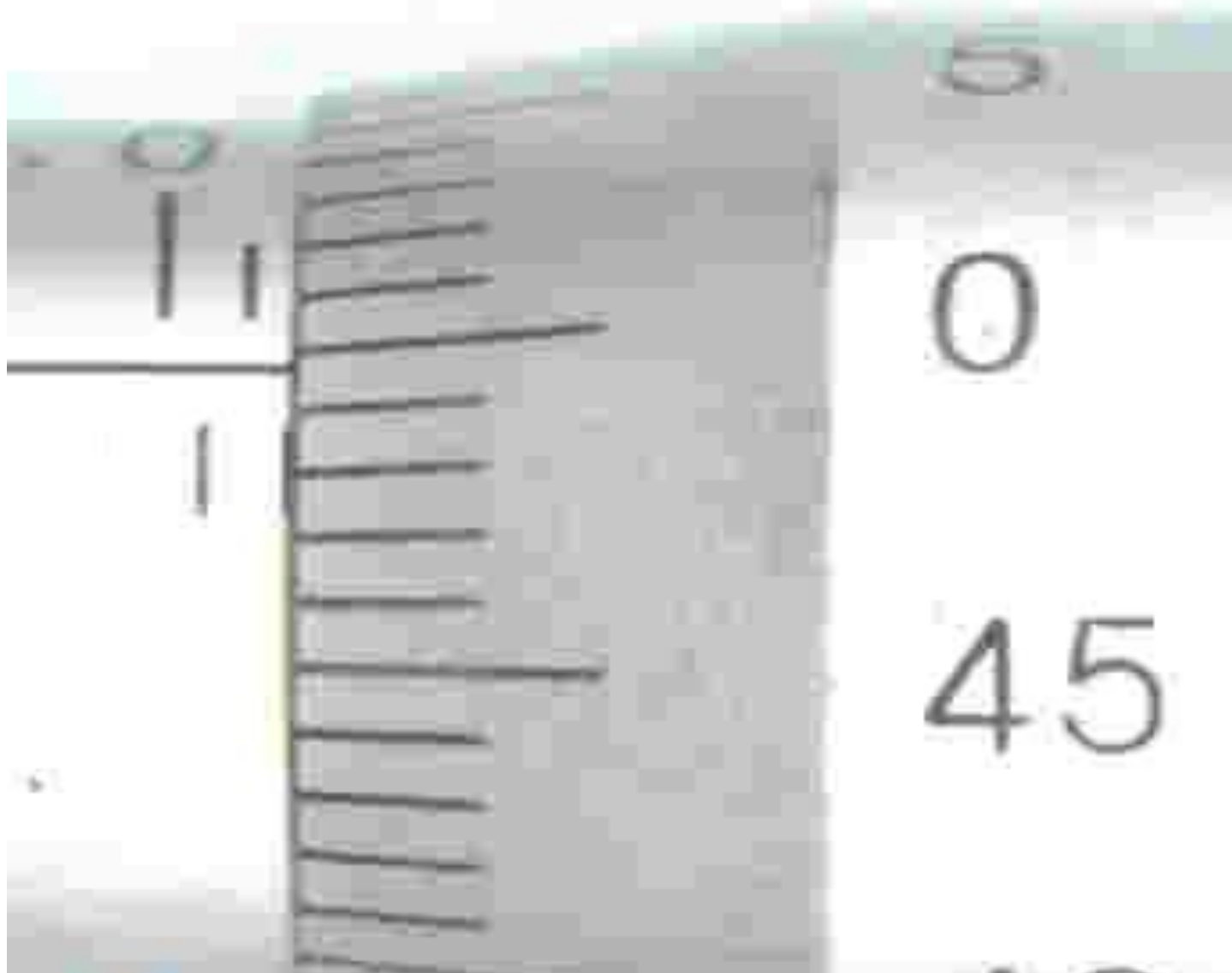
Micrometer Closed – 0.000 mm



One Revolution – 0.500 mm



Two Revolutions – 1.000 mm



Three Revolutions – 1.500 mm

Reading the Micrometer Caliper

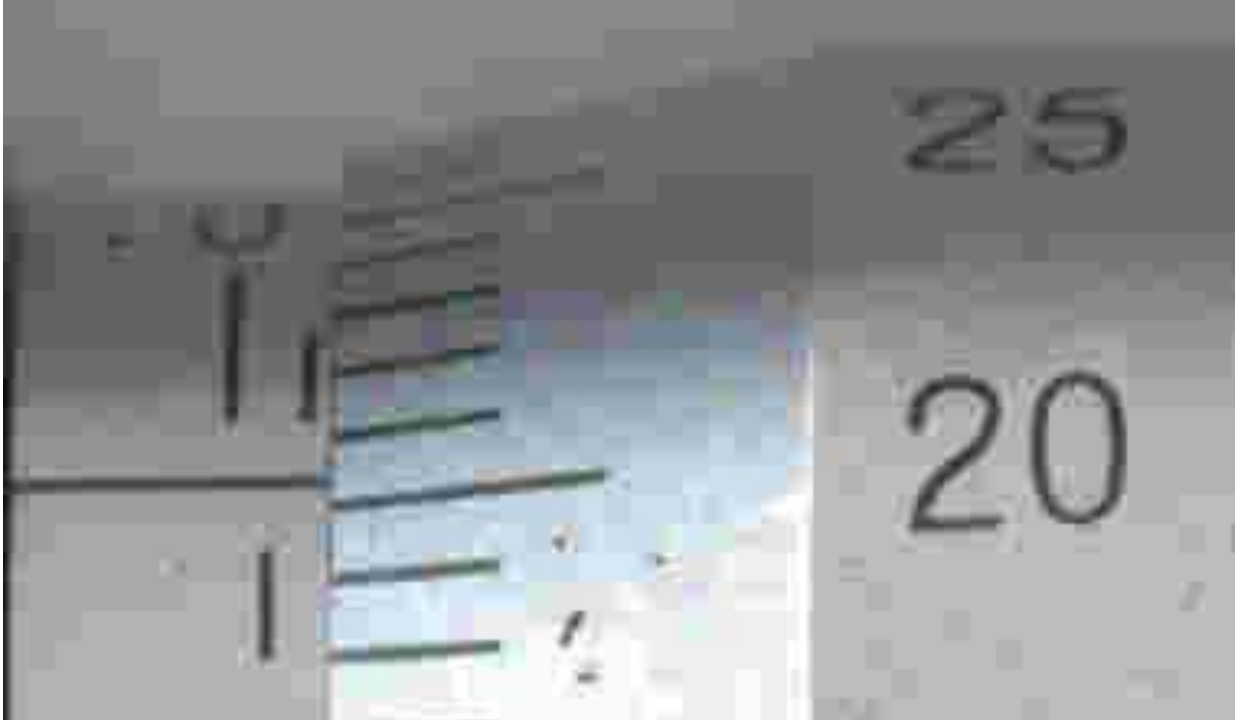
- Use the micrometer caliper to measure the dimension of the object as instructed.
- Determine the reading on the linear scale.
- Determine the reading on the rotating scale.
- Add the readings obtained in the two previous steps.
- Finalize the reading by adding the units.



Linear Scale	3.000 mm
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Rotating Scale	0.270 mm
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Reading	3.270 mm
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Linear Scale	1.000 mm
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Rotating Scale	0.205 mm
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Reading	1.205 mm
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Linear Scale	6.500 mm
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Rotating Scale	0.170 mm
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Reading	6.670 mm
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