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Shooting Targets, Stencils and Accessories – By S. Milner

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Product Information Brochure:

The Minute of Angle (MoA) Ruler

Aus Pat. App. No. 2012101706



The Minute of Angle (MoA) Ruler

The Minute of Angle (MoA) Ruler is a multipurpose ruler designed to assist firearm shooters both in calibrating their firearms and measuring the accuracy of target shooting results. This ruler assists target shooters by providing a mechanism for rapid, accurate estimations of both shooting 'Group' sizes and the 'Minute of Angle' value adjustments required to calibrate or 'zero' firearm sights.

This ruler is designed to be applicable to shooting distances of 100, 200, 300, 400, 500, 600*, 800* & 1000* metres and yards.

*600, 800 and 1000 units are determined by halving the 300, 400 and 500 units respectively.

How it works:

Each row of numbers on the MoA ruler corresponds to a specific shooting distance. For example, if you wish to measure subtended MoA sizes for 300m shooting distances. Place the ruler on your target and read off the corresponding MoA value from the 3rd row of numbers on the Metres side of the ruler.

Figure 1 illustrates how to measure the MoA group size at a range of 200 metres. The group size is measured as the distance between the two outermost shots.

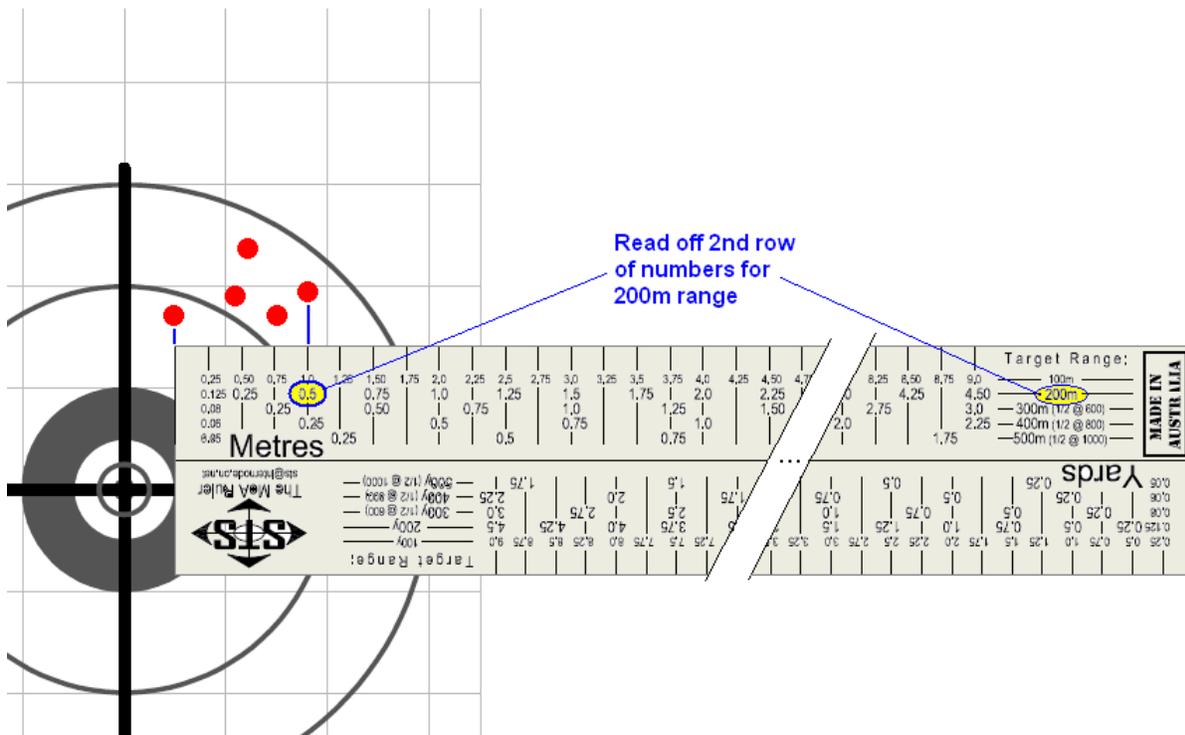


Figure 1 - 200m Group Measurement



Determining intermediate values:

The first column of numbers on the MoA ruler indicates the increment value for each shooting range. For example, as illustrated in Figure 3, on the 500 yard range the distance between each line marker is 0.05 MoA. Therefore each successive line is 0.05 MoA more than the previous. With this knowledge it is possible to determine intermediate MoA values between marked numbers. The illustration below (figure 3) applies this principle to expand on the intermediate values for the 500 yard range.

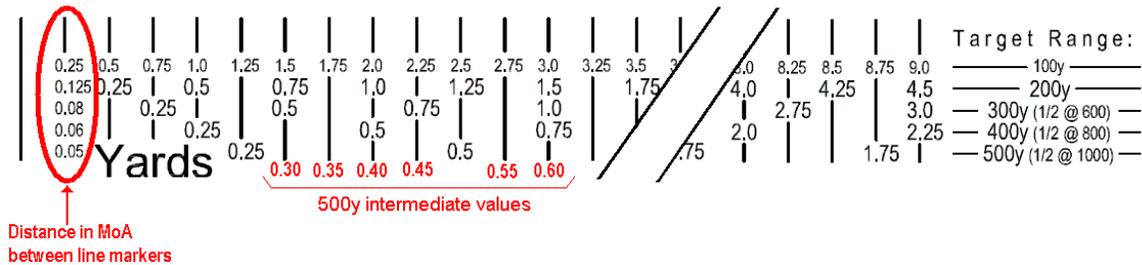


Figure 3 - Intermediate Values

As all line markers are equally spaced it is possible to further estimate intermediate MoA sizes by gauging the distance between markers. I.e. 1/2 way between the 0.40 and 0.45 line marks on the 500y range corresponds to a value of 0.425 MoA.



Minute of Angle Basics

A common unit of measure in firearm shooting is the “Minute of Angle” or “Minute of Arc” which is generally referred to as the acronym “MoA”. One MoA is defined by 1/60th of a degree of arc where a full circle contains 360 degrees of arc.

As such 1 MoA = 0.01666666... degrees

Due to MoA being an angular measurement, the distance subtended by 1 MoA increases linearly with the distance between the origin (firing position) and destination (target).



The distance ‘D’ at which one Minute of Angle subtends at range ‘R’ is represented by the following trigonometric equation:

$$D = \text{Tan}(1/60) * R$$

Firearm sights often contain adjustments in 1/4th or 1/8th MoA click values. As such 4 clicks of a 1/4th MoA sight correlates to 1 MoA and likewise, 8 clicks of a 1/8th MoA sight correlates to 1 MoA.

Occasionally sight manufacturers use 1/4 Inch @ 100 yards click values in place of 1/4th MoA. This is a close approximation of 1/4th MoA sight as 0.25 MoA at 100 yards = 0.2617 inches compared to 0.25 inches.

The difference in these conventions can become significant for longer range shooting. At 1000 yards 40 clicks (10 MoA) of a true MoA sight will result in a shift of 104.7 inches compared to 100.0 inches for 40 clicks of a 1/4” @ 100yard sight.





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