

CRC

“Complete Ruler for Circle Measuring and Drawing”

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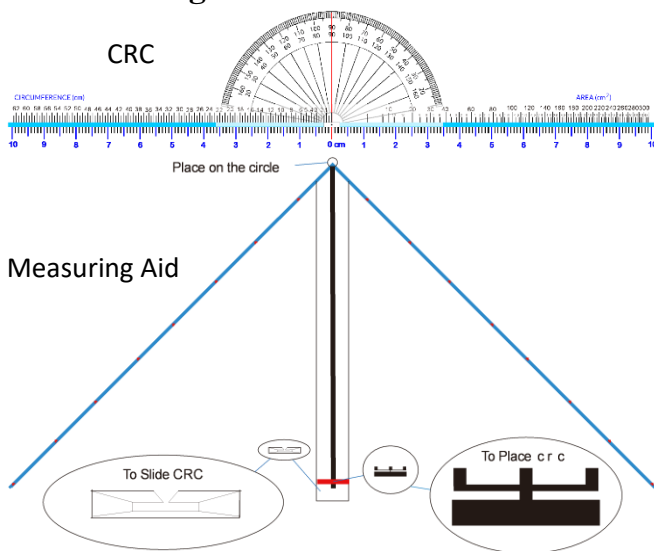
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Bronze Medal in Mathematics (APCYS 2018)

1. Introduction

Circle is one of the most important forms in the world. Measurement and depiction of full circles or pieces based on certain specifications will require several tools, steps, and times. The purpose of this study is to make a simple tool that has complete functions to measure and draw circles with certain specifications. This tool is named CRC "Complete Ruler for Circles".

2. CRC Design



Step of using CRC as a circle gauge: (1) The tip of measuring device is placed on the circle edge. (2) Place CRC on the provided place (3) CRC is shifted up until the same number on the CRC scale is shown on circle. (4) Circle radius is shown on the bellow scale, circumference and circle area are shown on the above scale.

Steps of using CRC as the drawing tool: (1) Place the compass needle in the center hole of CRC (2) Place the compass pencil in the scale wanted (3) Twist the compass in correct direction

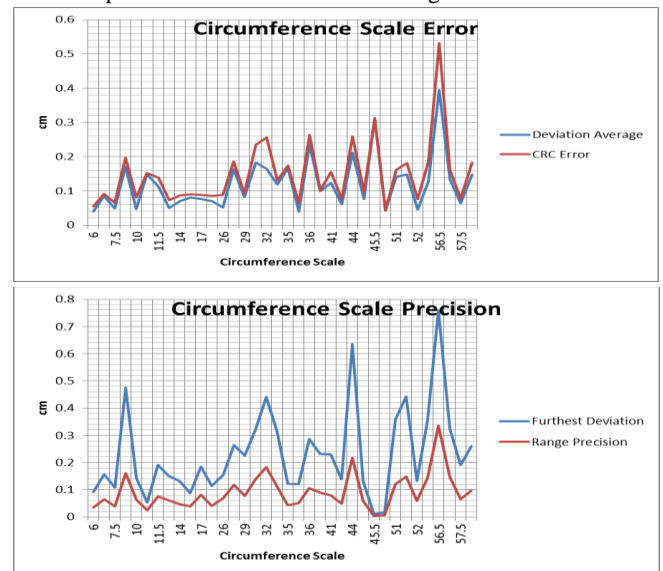
3. Result and Analysis

Testing the error and accuracy of the CRC is carried out by drawing a circle from each circle

scale and area scale. The circle diameter that has been drawn is measured by computation and compared with the correct value of each scale.

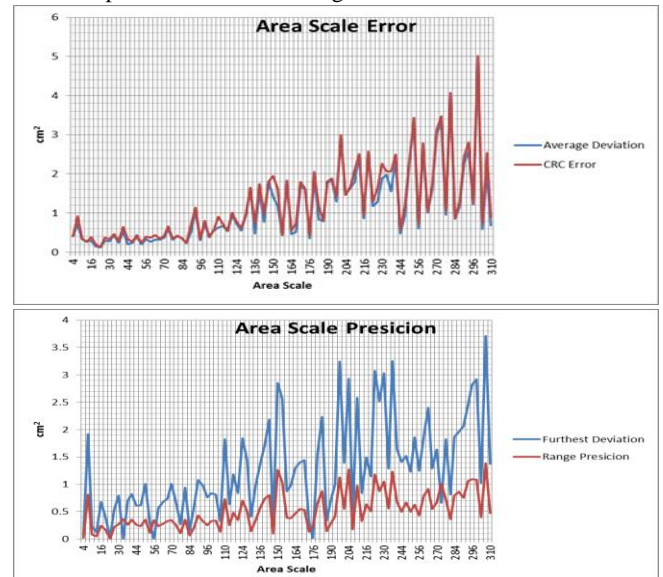
Precision analysis and unconformity in each ruler is done by comparing each measurement of 3 circles on the same scale. The result is in the graph below.

Graph 1. Circumference Ruler Testing



Precision, unconformity	Accuracy, error
$\pm 0.090289242\text{cm}$.	$\pm 0.145018292\text{cm}$

Graph 2. Area Ruler Testing



Precision, unconformity	Accuracy, error
$\pm 0.516879331\text{cm}^2$	$\pm 1.476996539\text{ cm}^2$

4. Conclusion

CRC as the one simple tool that able to measure and draw circle in certain specification with high precision and accuracy.

5. References

“admin@tentorku.com”<https://www.tentorku.com/keti-dakpastian-kesalahan-akurasi-dan-presisi/> 6-10-2017.

Tucker,<https://sciencing.com/geometry-used-real-life-8698204.html> 25-4-2017