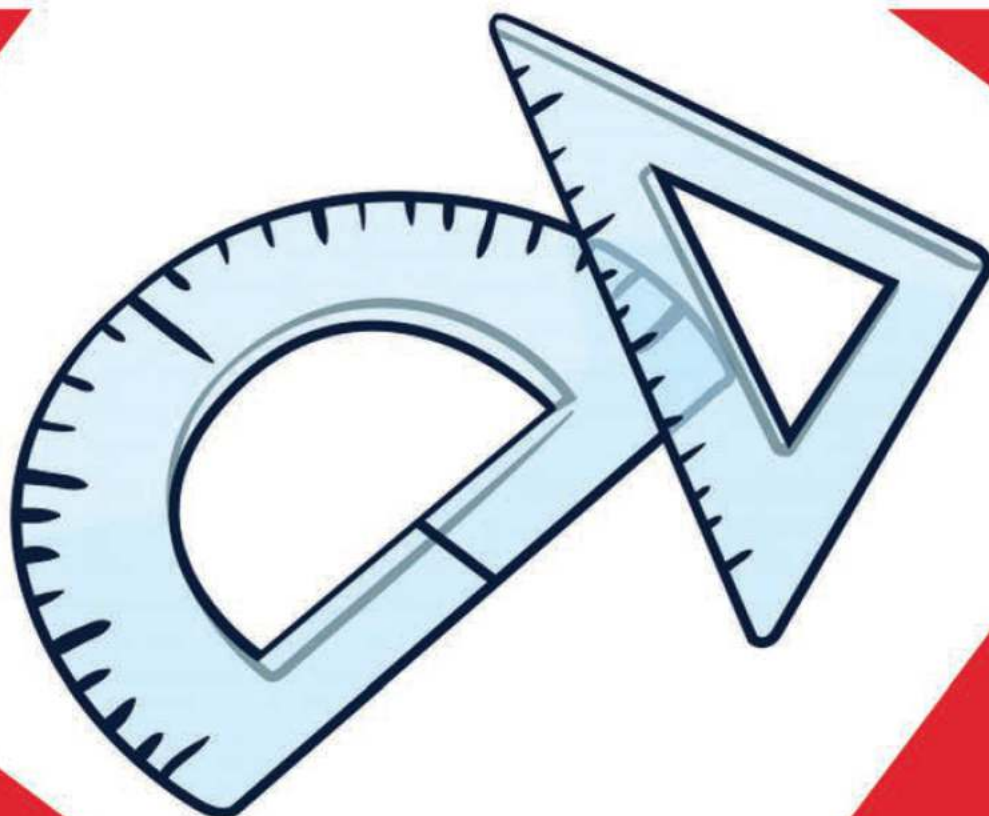


A/L COMBINED MATHEMATICS



Trigonometry

RAJ WIJESINGHE

ඔව්, ගීත කාලය පැමිණේවි

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නිම කැටි සහිත මහ නපුරු සුළි සුළං හමාවි

එහෙත්, වසන්තය එනවා සත්තයි...



4. $\sin^{-1}(\frac{1}{2}) = \frac{\pi}{6}$
5. $\cos^{-1}(\frac{1}{2}) = \frac{\pi}{3}$
6. $\tan^{-1}(1) = \frac{\pi}{4}$
7. $\sec^{-1}(2) = \frac{\pi}{3}$
8. $\csc^{-1}(2) = \frac{\pi}{6}$
9. $\cot^{-1}(1) = \frac{\pi}{4}$
10. $\sin^{-1}(\frac{\sqrt{3}}{2}) = \frac{\pi}{3}$
11. $\cos^{-1}(\frac{\sqrt{3}}{2}) = \frac{\pi}{6}$
12. $\tan^{-1}(\frac{1}{\sqrt{3}}) = \frac{\pi}{6}$



17. _____.

_____ ii. $\sin 240^\circ$ iii. $\sin 300^\circ$ _____

_____ xii. $\tan(-240^\circ)$

18. _____.

20. _____.

21. _____.

22. [redacted]

[redacted]

[redacted]

24. [redacted]

25. [redacted]

26. If $\sin\theta = -\frac{3}{5}$ and θ is an reflex angle find $\cos\theta$ and $\tan\theta$

27. [redacted]

28. [redacted]

29. If $\tan\theta = -\frac{3}{4}$ and θ is an obtuse angle, find $\cos\theta$ and $\sin\theta$

30. [redacted]

31. [redacted]

32. [redacted]

[redacted]

[redacted]

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[redacted]

33. [redacted]

34.

[REDACTED]

[REDACTED]

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35.

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39. [Redacted]

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40. [Redacted]

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41. [Redacted]

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42. [redacted]

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43. [redacted]

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51. [REDACTED]
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52. [REDACTED]
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53. [REDACTED]
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54. [REDACTED]
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[REDACTED]





56. 



60.

[Redacted]



61.

[Redacted]

62.

[Redacted]



[Redacted]

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[Redacted]



64. In the diagram two circles with radius r are intersected. Show

that the area of the shaded region is $\frac{r^2}{6}(4\pi - \sqrt{3})$



65. A train wheel with 90cm diameter makes 13 rotations per second.

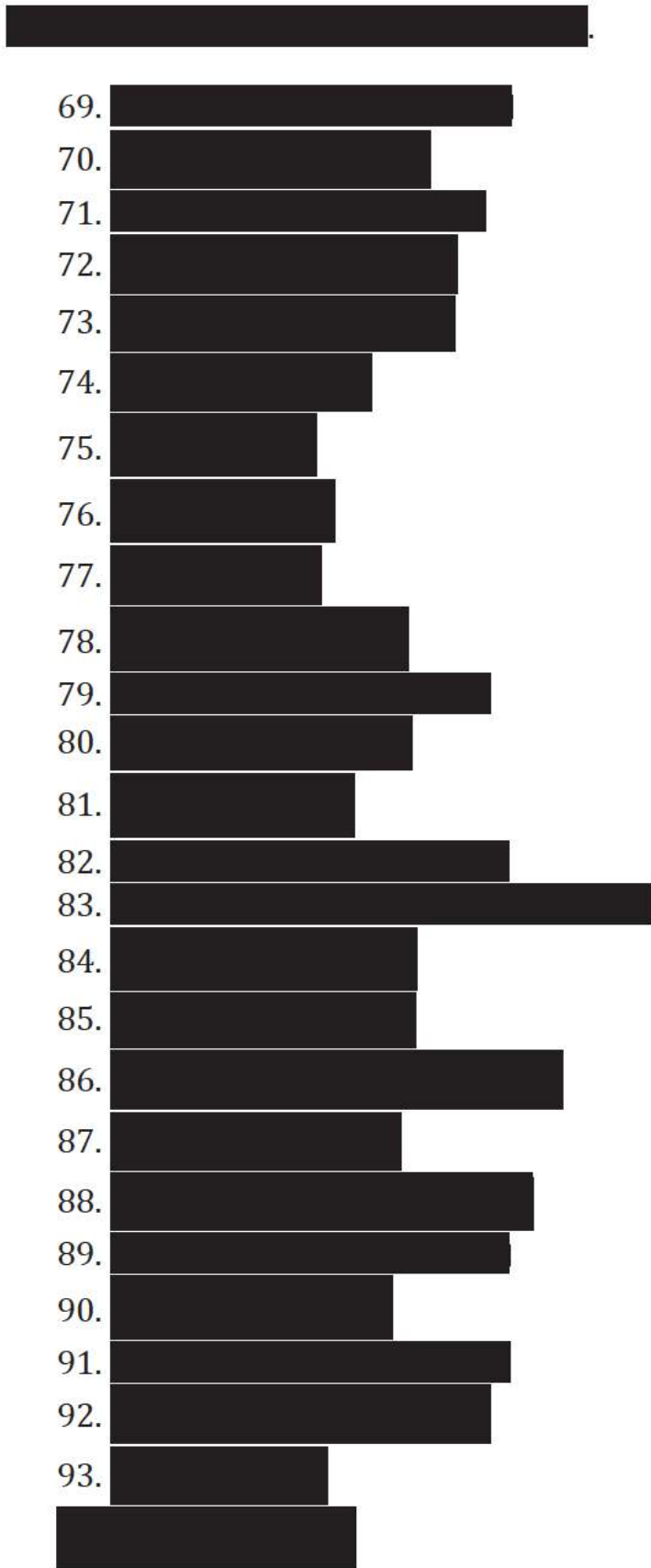
Find the velocity of the train.

66. [Redacted]



67. [Redacted]



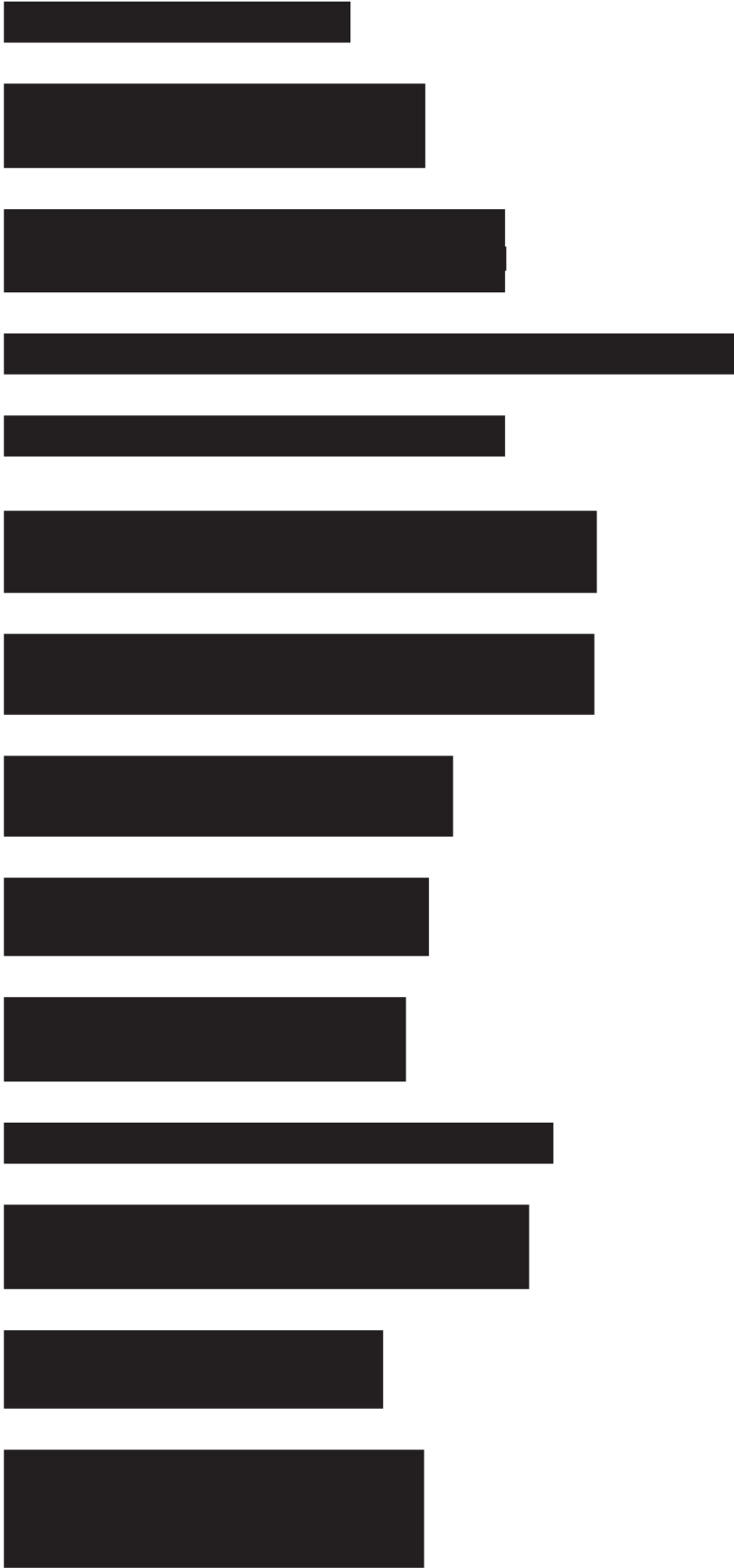


115. $\frac{1-\sin\theta}{\cos\theta} \equiv \frac{1}{\sec\theta+\tan\theta}$





Category	Should Take Action (%)	Should Not Take Action (%)
All respondents	85	15
Age		
18-29	88	12
30-49	85	15
50-69	82	18
70+	78	22
Gender		
Male	83	17
Female	87	13
Education		
High school or less	80	20
Some college	85	15
Bachelor's or higher	88	12

























A horizontal bar chart titled "Percentage of respondents who believe the U.S. should take action to address climate change." The chart displays data for two main categories: "All respondents" and "U.S. adults", each further broken down by "Age group" and "Gender". The x-axis represents the percentage, ranging from 0 to 100. The y-axis lists the categories. The bars are color-coded: blue for "All respondents", green for "U.S. adults", and light blue for "All respondents" and light green for "U.S. adults".

Category	Sub-category	Percentage
All respondents	18-29	85%
	30-49	75%
	50-69	70%
	70+	65%
U.S. adults	18-29	80%
	30-49	70%
	50-69	65%
	70+	60%
All respondents	Male	75%
	Female	80%
U.S. adults	Male	70%
	Female	75%



31

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361. [Redacted].

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(ii) $\sqrt{\frac{1+\sin \theta}{1-\sin \theta}} + \sqrt{\frac{1-\sin \theta}{1+\sin \theta}} = 2 \tan \theta$

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Trig Identities

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379. [REDACTED]

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$$(iii) 2 (\sin^6 x + \cos^6 x) - 3 (\sin^4 x + \cos^4 x) + \sin^2 x + \cos^2 x = 0$$

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415. $\cos(A + B) \cos(A - B) - \sin(A + B) \sin(A - B)$

A horizontal bar chart titled 'U.S. should take action to reduce greenhouse gas emissions' showing the percentage of respondents who agree with this statement, broken down by age group. The y-axis lists age groups from 18-29 to 65+. The x-axis represents the percentage from 0 to 100. The bars show that younger age groups are more likely to agree with the statement, with the 18-29 group at approximately 85% and the 65+ group at approximately 55%.

Age Group	Percentage
18-29	85%
30-39	75%
40-49	70%
50-59	65%
60-64	60%
65+	55%

$\tan x = t$ show that $\cos 2x = \frac{1-t^2}{1+t^2}$



41

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479. [Redacted]

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(v) $4 \sin 67\frac{1}{2} \sin 22\frac{1}{2}$ (vi) $4\cos (2\alpha - \beta) \cos (2\alpha + \beta)$

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a) in terms of x only

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11/11/2016

488. For any value of θ show that $\tan\theta \tan\left(\frac{\pi}{2} - 3\theta\right)$ cannot take any values between $\frac{1}{3}$ and 3.

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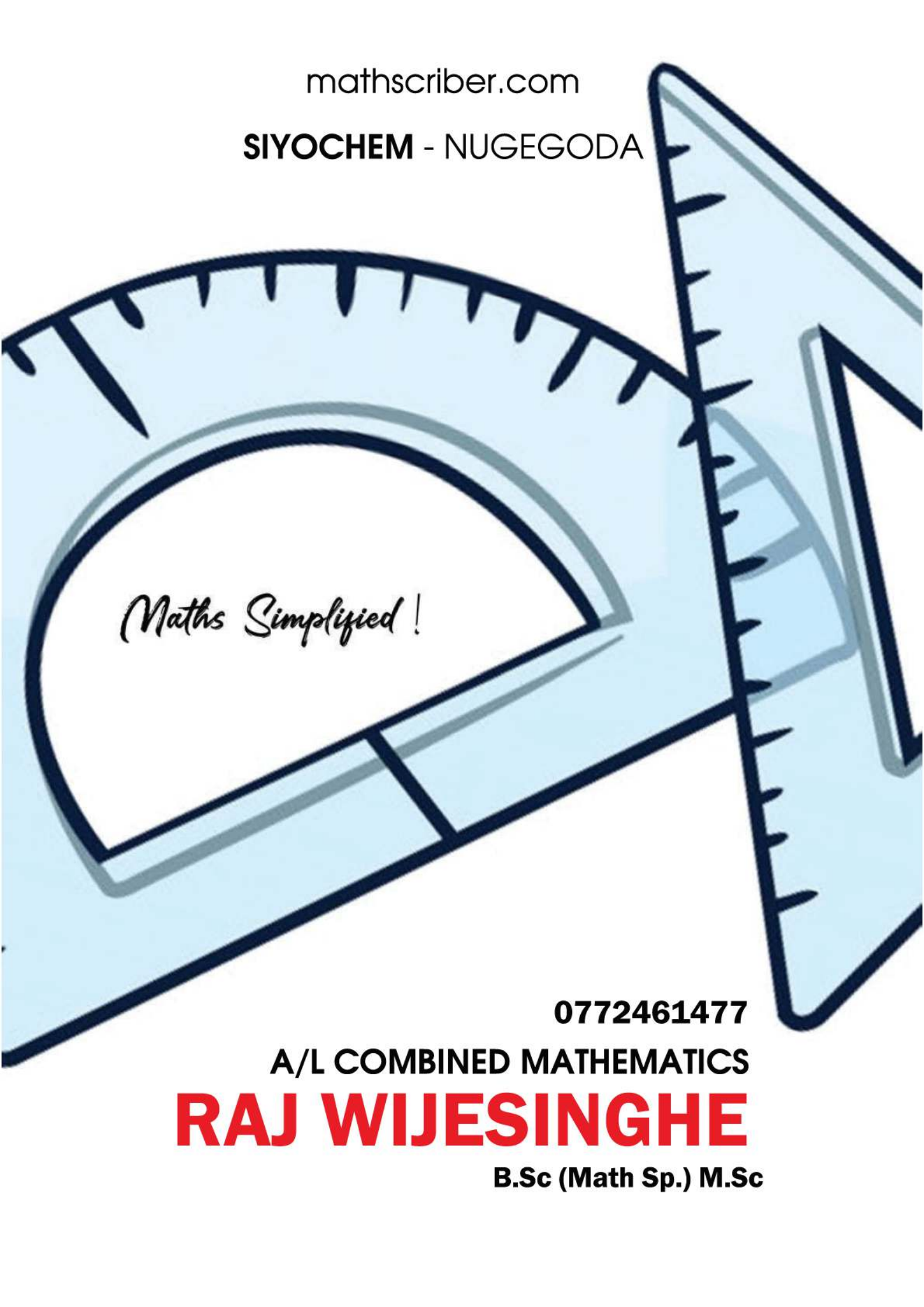
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