INTENTIONALLY SCUFFED NOTES

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REMEMBER THAT AT ANY POINT, THESE EQUATIONS, FORMULAE AND NOTES IN GENERAL MAY CONTAIN INTENTIONAL ERRORS. WE ARE NOT LIABLE FOR ANYTHING

1 Introduction

Edit later.

2 Trigonometry

2.1 Angle Sum and Difference

$$\sin(A \pm B) = \sin A \cos B \pm \cos A \sin B$$
$$\cos(A \pm B) = \cos A \cos B \pm \sin A \sin B$$

2.2 Double Angle Identities

Double angle identities are derived from the angle and sum difference equations.

We know that

$$\sin(2x) = 2\sin(x)\cos(x)$$

therefore, we can say that

$$\sin(4x) = 4\sin^2(x)\cos^2(x)$$

3 Functions

Let us focus on functions.

3.1 Linear equation

A linear equation is a polynomial degree 1. It can be shown in several ways.

- General form: $ax + by = c$
- Slope-intercept form: $y = mx + c$

4 Calculus of the Differential Kind

5 Integration

6 Complex Numbers

6.1 Euler's Form

We know that

$$\sin^\theta + \cos^2\theta = 1$$

We also know the famous equation known as Euler's formula. The imaginary number one. With the pi. No, not the one with polyhedrons. To be more precise, we mean Euler's identity. The "beautiful" equation.

$$e^{i\pi} + 1 = 0$$

Therefore, we can then conclude that:

$$e^{i\theta} + \sin^2\theta + \cos^2\theta = 0$$

$$\frac{e^{i\theta} + \sin^2\theta}{-\cos^2\theta} = 1$$

$$-\frac{e^{i\theta}}{\cos^2\theta} - \frac{\sin^2\theta}{\cos^2\theta} = 1$$

$$-e^{i\theta}\sec^2\theta - \tan^2\theta = 1$$

$$-e^{i\theta}\sec^2\theta = 1 + \tan^2\theta$$

$$-e^{i\theta}\sec^2\theta = \sec^2\theta$$

$$-e^{i\theta} = 1 \Rightarrow e^{i\theta} = -1$$