Trigonometriya Asoslari: 1-sinf, cos, tan ishoralari

Ushbu taqdimot trigonometriya o'qituvchilari uchun mo'ljallangan. Unda asosiy tushunchalar, ishoralar va o'quv jarayonida qo'llaniladigan usullar ko'rib chiqiladi. Mavzular sodda va tushunarli tilda bayon etiladi.

by Python Jobs

Trigonometrik Funksiyalarning Ta'rifi

Asosiy Funksiyalar

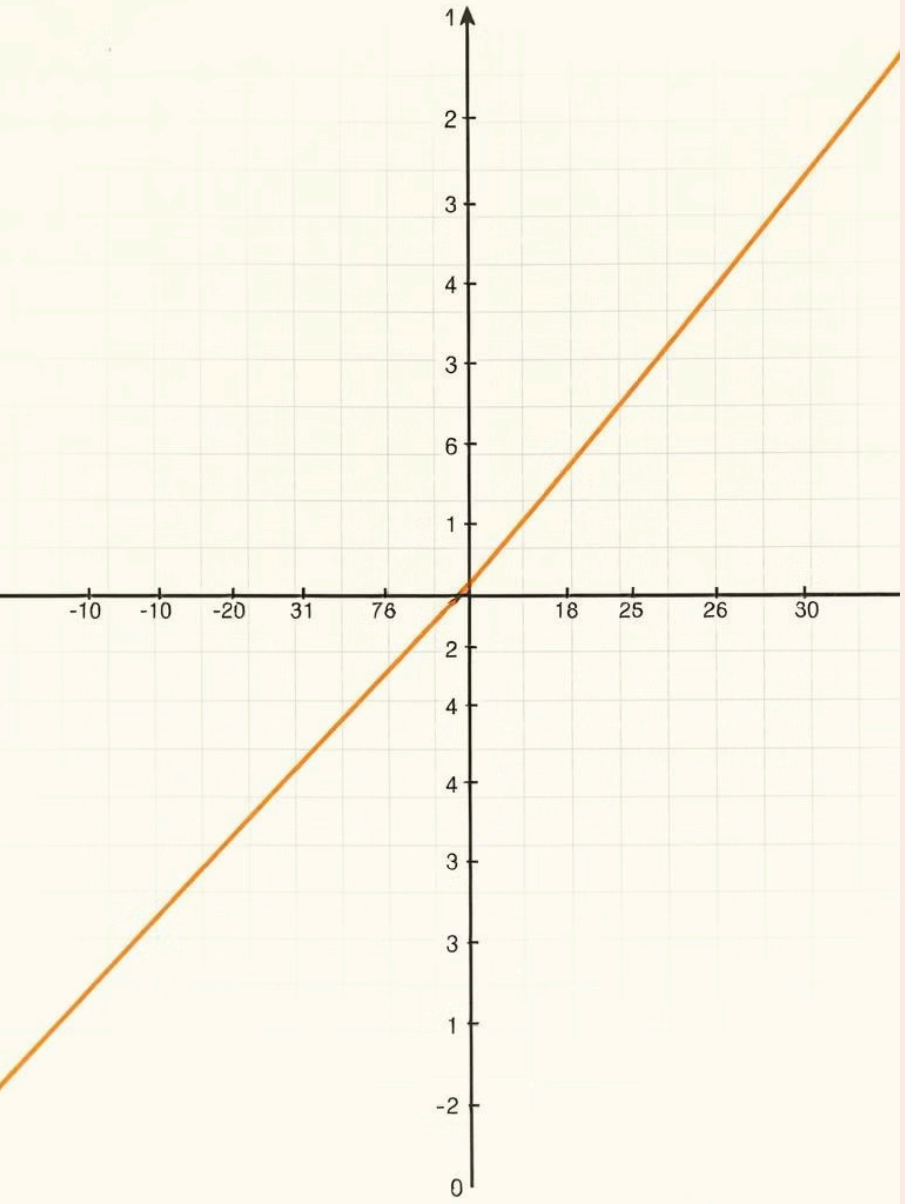
Sinus (sin), kosinus (cos), tangens (tan) va kotangens (ctg) trigonometriyaning asosiy funksiyalari hisoblanadi.

Birlik Aylana

Birlik aylana koordinatalari trigonometrik funksiyalarni aniqlashda muhim rol o'ynaydi.

Aniqanish Sohasi

Har bir trigonometrik funksiyaning aniqlanish sohasi mavjud. Buni bilish tenglamalarni yechishda muhim.



Choraklar bo'yicha Ishoralar

Chorak	Sinus (sin)	Kosinus (cos)	Tangens (tan)
I	+	+	+
II	+	-	-
III	-	-	+
IV	-	+	-

Trigonometrik Funksiyalarning Juft va Toqligi

1 Juft Funksiya

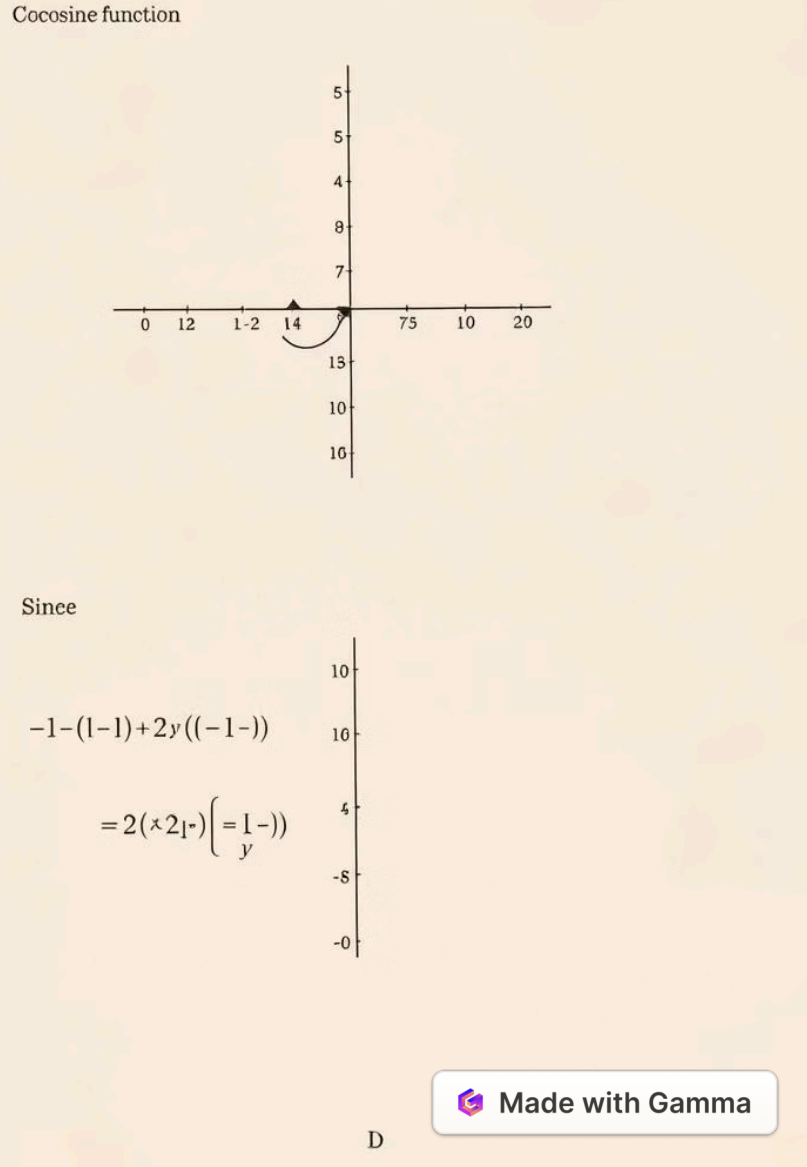
Kosinus (cos) - juft funksiya: cos(-a) = cos(a). Grafiki y o'qiga nisbatan simmetrik.

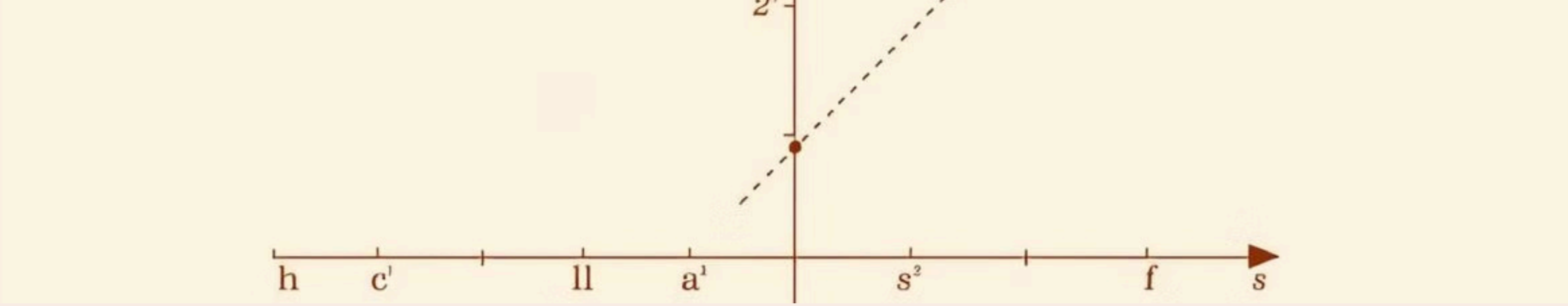
2 Toq Funksiyalar

Sinus (sin), tangens (tan) va kotangens (ctg) - toq funksiyalar. sin(-a) = -sin(a)

3 Simmetriya

Toq funksiyalar koordinata boshiga nisbatan simmetrik. Grafiklarning simmetriyasiga e'tibor bering.





a va -a Burchaklarning Trigonometrik Funksiyalari

`sin(-a) = -sin(a)`

`cos(-a) = cos(a)`

`tan(-a) = -tan(a)`

`ctg(-a) = -ctg(a)`

Asosiy Trigonometrik Ayniyatlar

1

Pifagor Ayniyati

$\sin^2(a) + \cos^2(a) = 1$

2

Tangens

$\tan(a) = \sin(a) / \cos(a)$

3

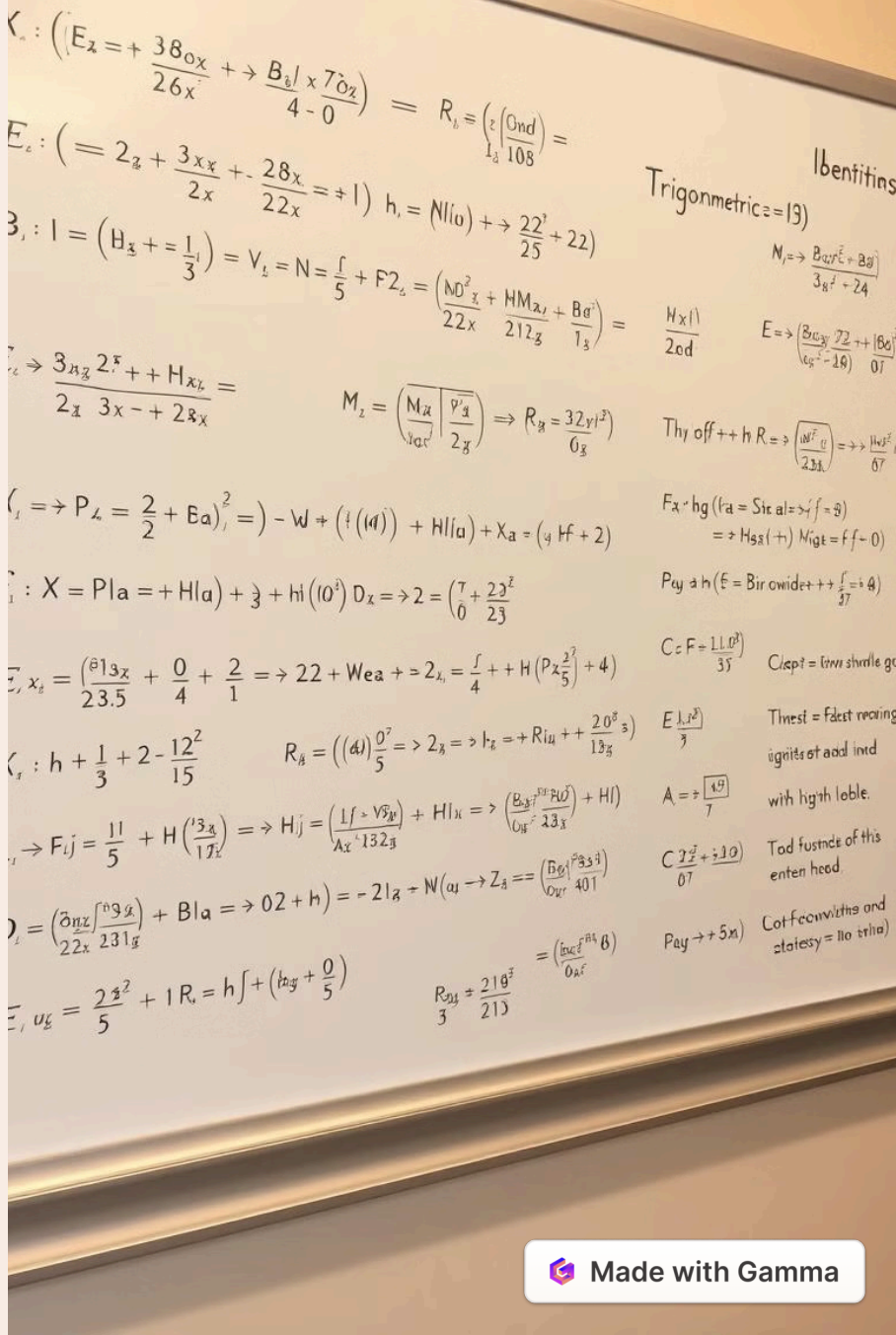
Kotangens

$\operatorname{ctg}(a) = \cos(a) / \sin(a)$

4

O'zaro Bog'liqlik

$\tan(a) * \operatorname{ctg}(a) = 1$



Qo'shimcha Trigonometrik Ayniyatlar

Ikki Karra Burchak

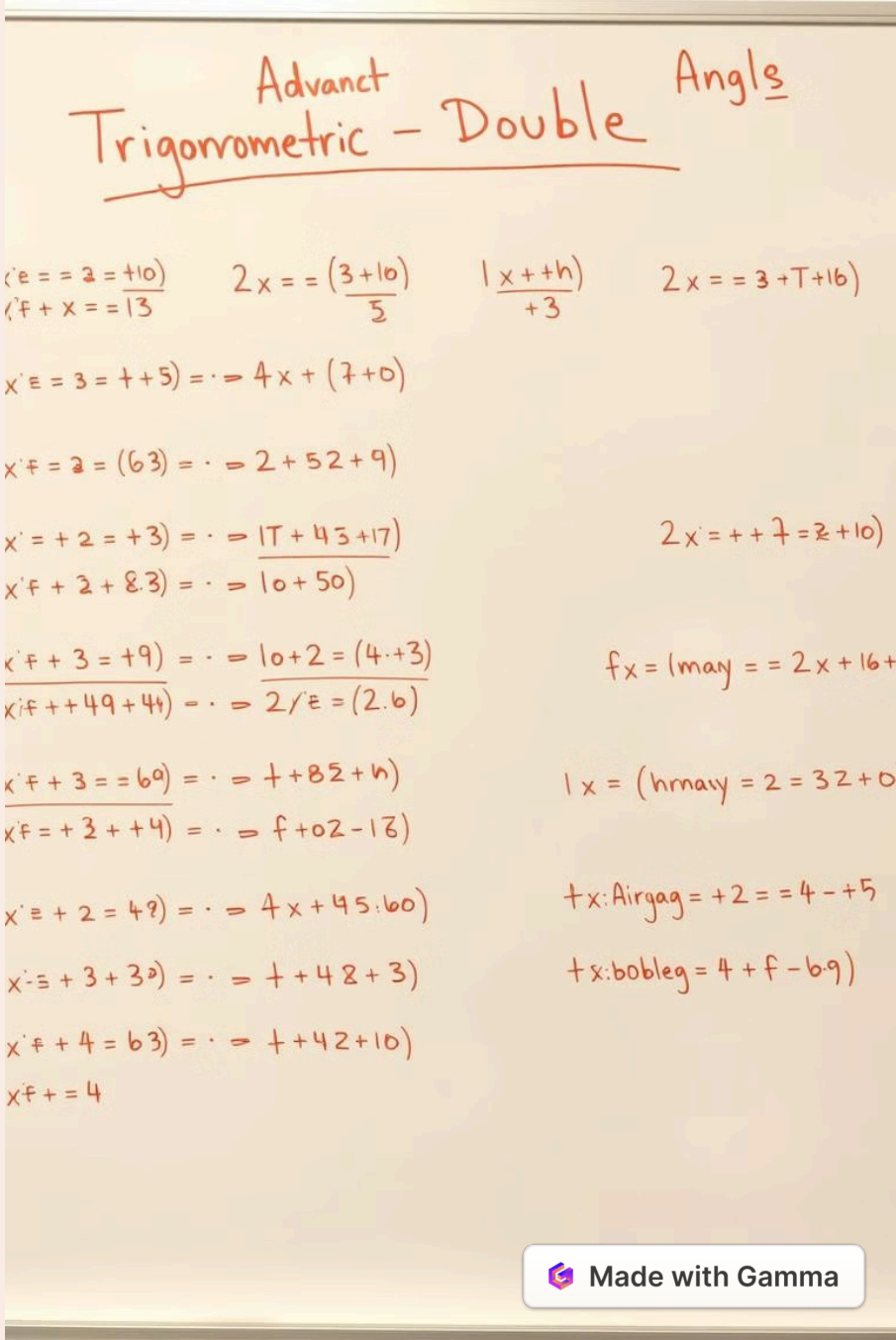
$\sin(2a) = 2\sin(a)\cos(a)$

Kosinus

$\cos(2a) = \cos^2(a) - \sin^2(a)$

Tangens

$\tan(2a) = 2\tan(a) / (1 - \tan^2(a))$



Yig'indi va Ayirmalarning Trigonometrik Funksiyalari

1

Sinus

$$\sin(a \pm b) = \sin(a)\cos(b) \pm \cos(a)\sin(b)$$

2

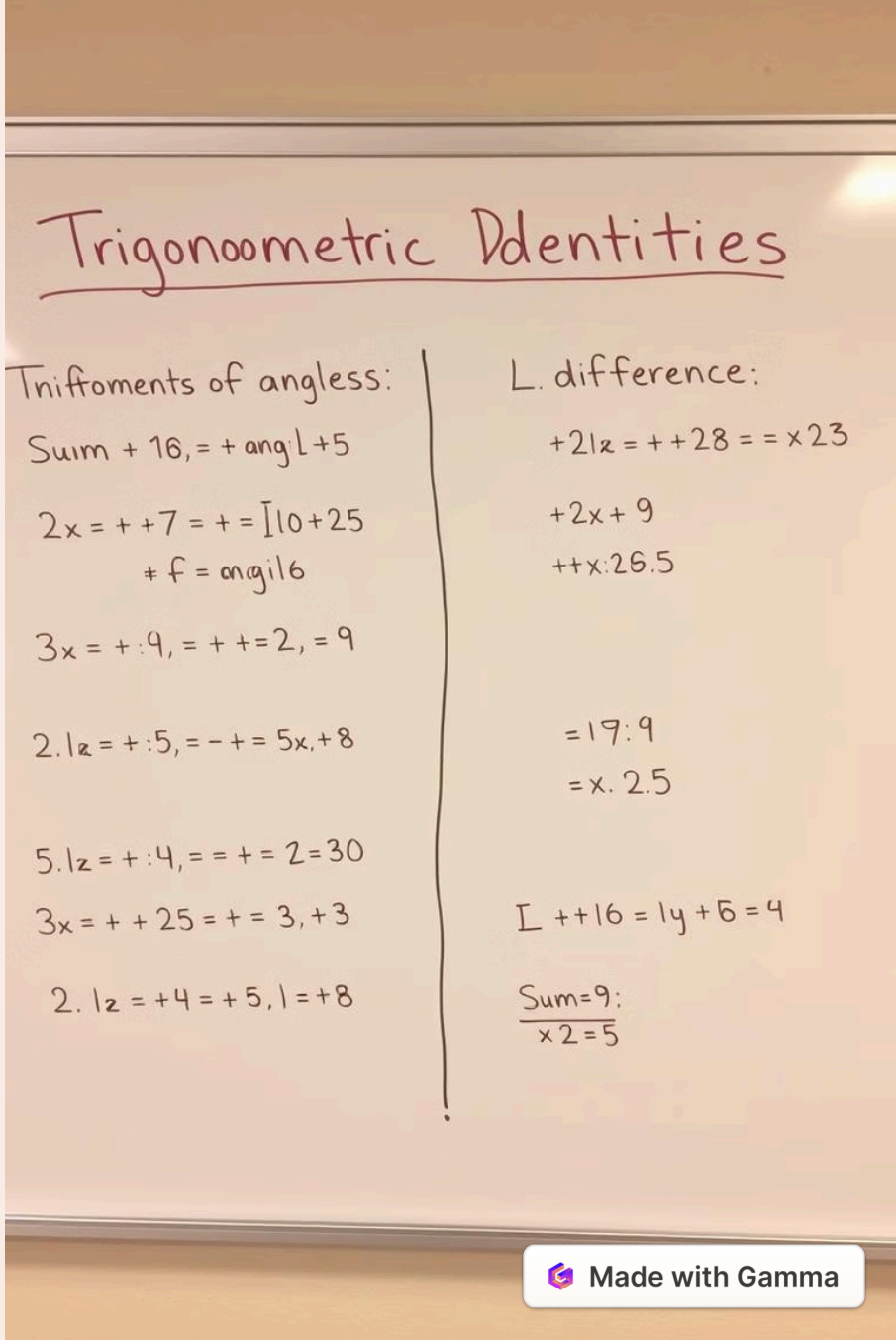
Kosinus

$$\cos(a \pm b) = \cos(a)\cos(b) \mp \sin(a)\sin(b)$$

3

Tangens

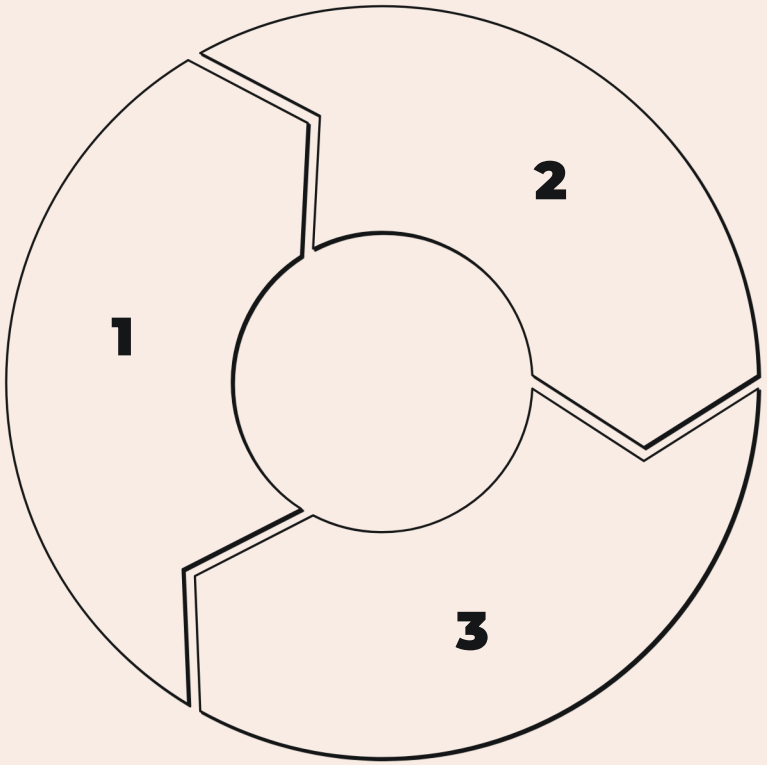
$$\tan(a \pm b) = (\tan(a) \pm \tan(b)) / (1 \mp \tan(a)\tan(b))$$



Trigonometrik Tenglamalarni Yechish

Oddiy Tenglamalar

`sin(x) = a, cos(x) = a`



Tangens

`tan(x) = a`

Umumiy Yechimlar

`Xususiy yechimlar`

Xulosa

Ushbu taqdimotda trigonometrik funksiyalar va ayniyatlarning asosiy tushunchalari ko'rib chiqildi. Olingan bilimlarni amaliyotda qo'llash va kelgusi mavzularga tayyorgarlik ko'rish muhim. E'tiboringiz uchun rahmat!