

Grade 12 Trigonometrie

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DATE: 23 May 2023



Trigonometrie: Definisies

But all the arguments in favour of teaching algebra and trigonometry to advanced students, apply equally to the teaching of the principles or theory of arithmetic to...

—Joshua Girling Fitch

Thus trigonometry issued from surveying, astronomy, and geometry only to be absorbed, centuries later, in the...

—Unification in science and mathematics

He created, for astronomical use, a trigonometry remarkably perfect in form. ...

—History of mathematics

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Trigonometrie: Lirieke

From "Wonderful World" by Rod Stewart:

I don't know much about **geography**

Don't know much **trigonometry**

From "Heart On Hold" by Status Quo

You have the **technology**

You are in control, you know all the angles

Forget your **trigonometry**

Please release my soul, please undo this tangle

From "Rubberband Banks" by Young Dro

Ima outer space baller, put you up on **astronomy**

Mathematically with a pistol I do **trigonometry**

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In die Wêreld om ons

1- Toepassings in sterrekunde

2- Toepassings in argitektuur

3- Toepassings in navigasie

4- Toepassings in geografie

5- Toepassings in videospeletjies

6- Aansoeke in siviele ingenieurswese

7- Toepassings in meganiese ingenieurswese

8- Toepassings in elektroniese ingenieurswese

9- Aansoeke in biljart

10- Toepassings in fisika

11- Toepassings in medisyne

12- Toepassings in die verkeer

13- Toepassings in art

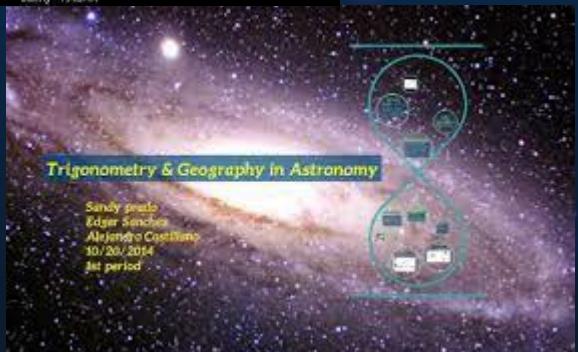
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In die Wêreld om ons

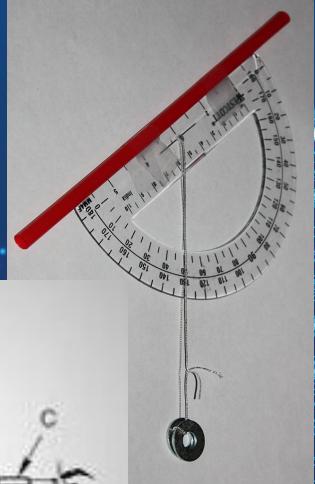
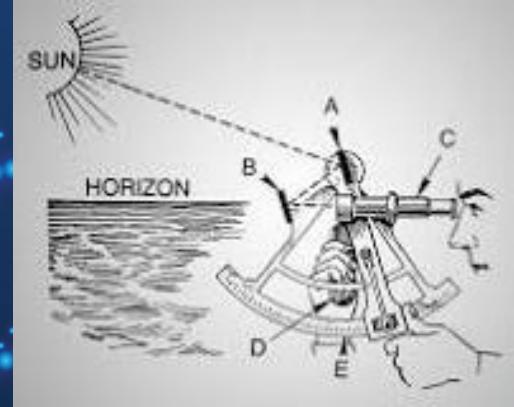
3- Toepassings in navigasie

Trigonometrie is jare lank in die navigasie gebruik en daarvoor het hulle die sogenaamde sekstant geskep, 'n instrument waarmee afstand gemeet kan word deur met die son of die sterre te driehoekig.



1- Toepassings in sterrekunde

Trigonometrie word in die sterrekunde gebruik om die afstand van die planeet Aarde tot die Son, die Maan, die radius van die Aarde te bereken, en ook om die afstand tussen planete te meet.



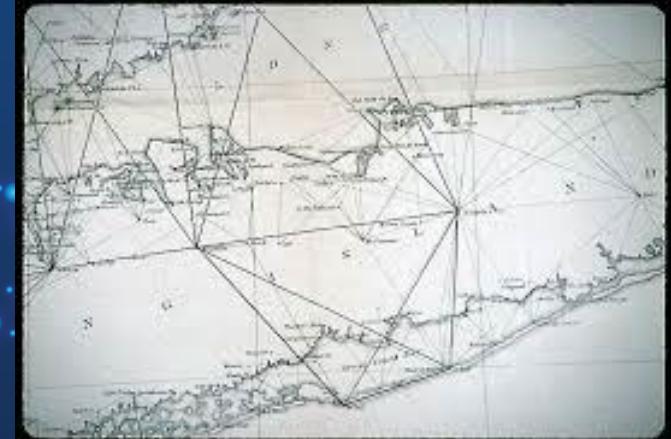
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In die Wêreld om ons



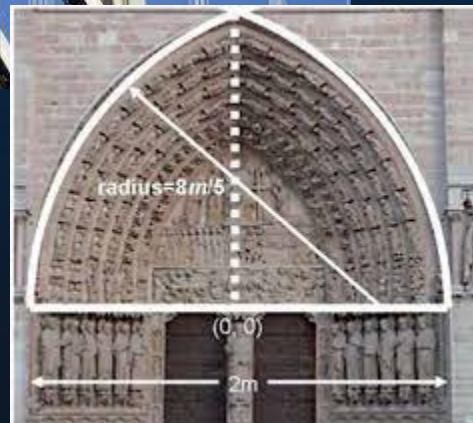
12- Toepassings in die verkeer

Trigonometrie is noodsaaklik om geografiese afstande te meet en sodoende roetes, verkeerselemente, spoedbeperkings, ens. Te kan opstel.



2- Toepassings in argitektuur

Die toepassing van trigonometrie in argitektuur is iets wat nooit moet ontbreek nie. Die opstel van die planne en die daaropvolgende uitvoering daarvan hang af van die gebruik daarvan.



4- Toepassings in geografie

Trigonometrie word gebruik vir die programmering van videospeletjies. Daarom is alles wat op die skerm aangebied word, trigonometrie nodig.

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Trigonometrie

Reëls

Grafieke

Verhoudings

Identiteite

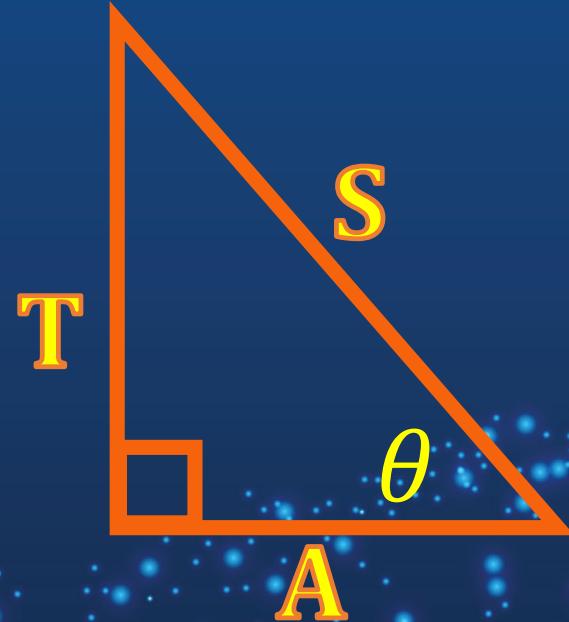
Ko-funksie

Spesiale Hoeke

Reduksie
Formule

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$$\sin \theta = \frac{T}{S}$$



$$\cos \theta = \frac{A}{S}$$

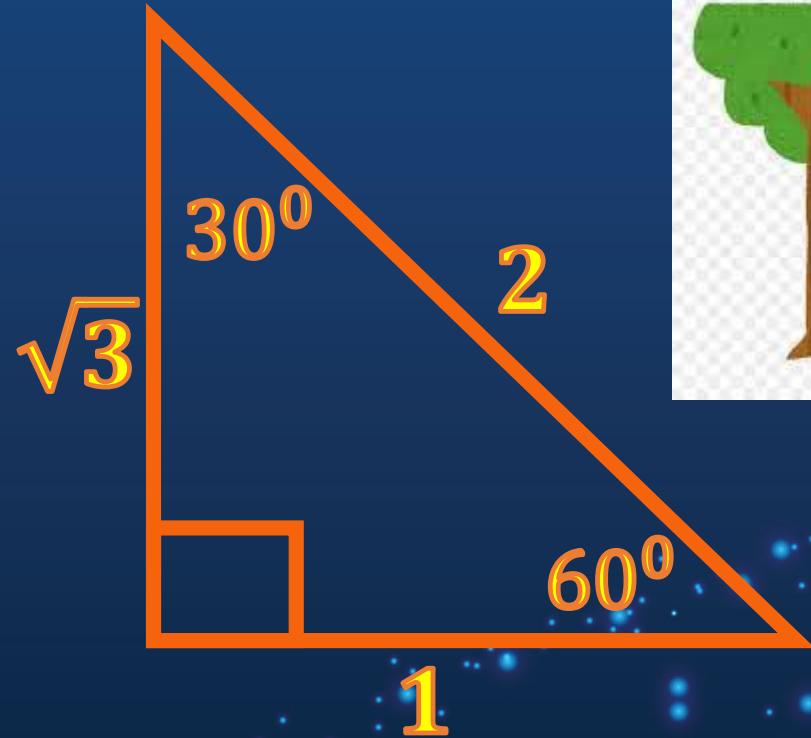
Verhoudings

Trigonometrie

$$\frac{TAT}{SSA}$$

$$\tan \theta = \frac{T}{A}$$

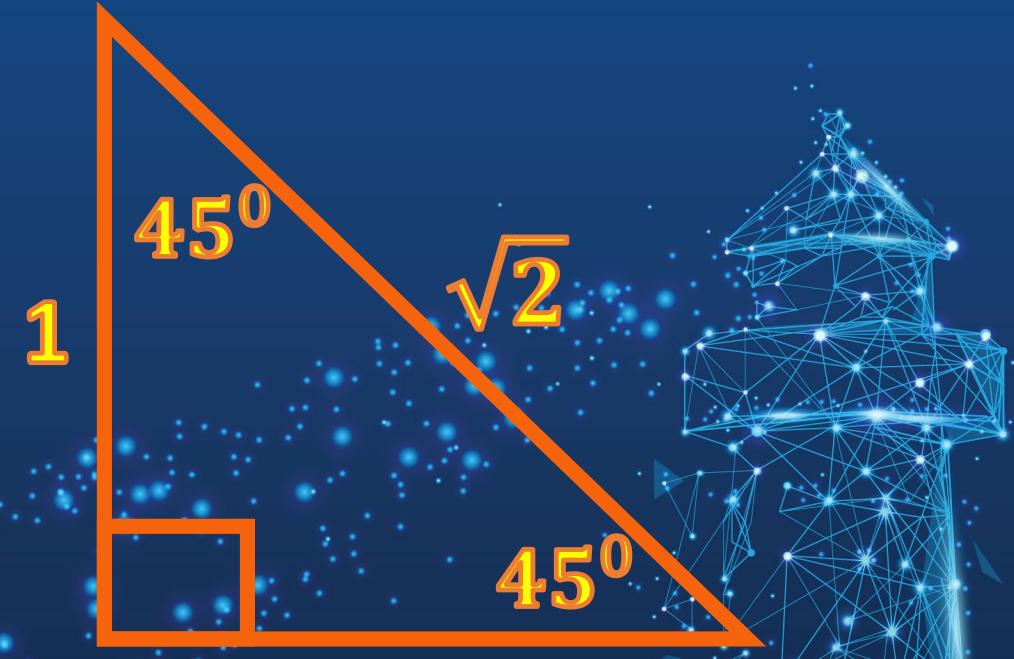
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Wekkruipertjie



Trigonometrie



Spesiale Hoeke

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Sinus Reël

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$



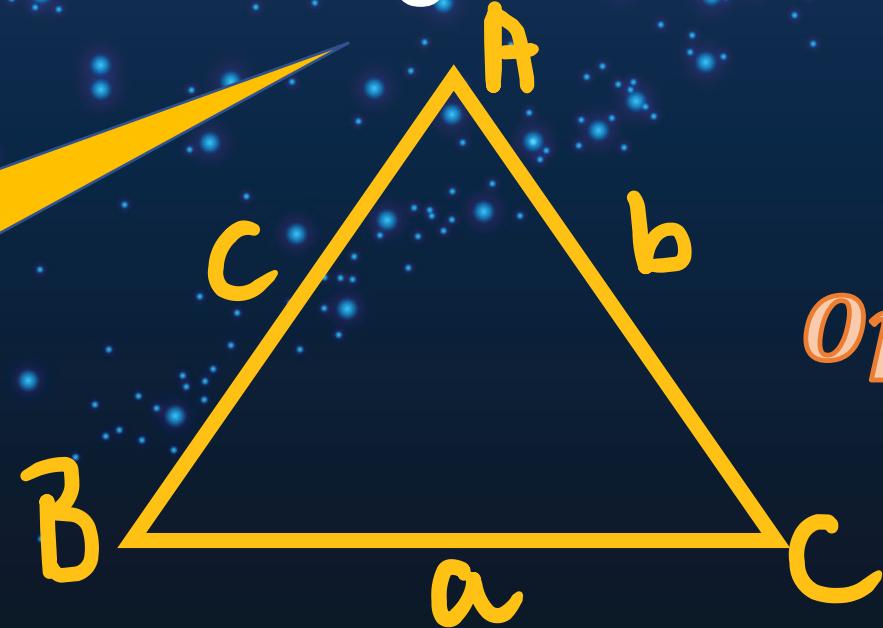
Reëls

Kosinus Reël

$$a^2 = b^2 + c^2 - 2bc \cos A$$



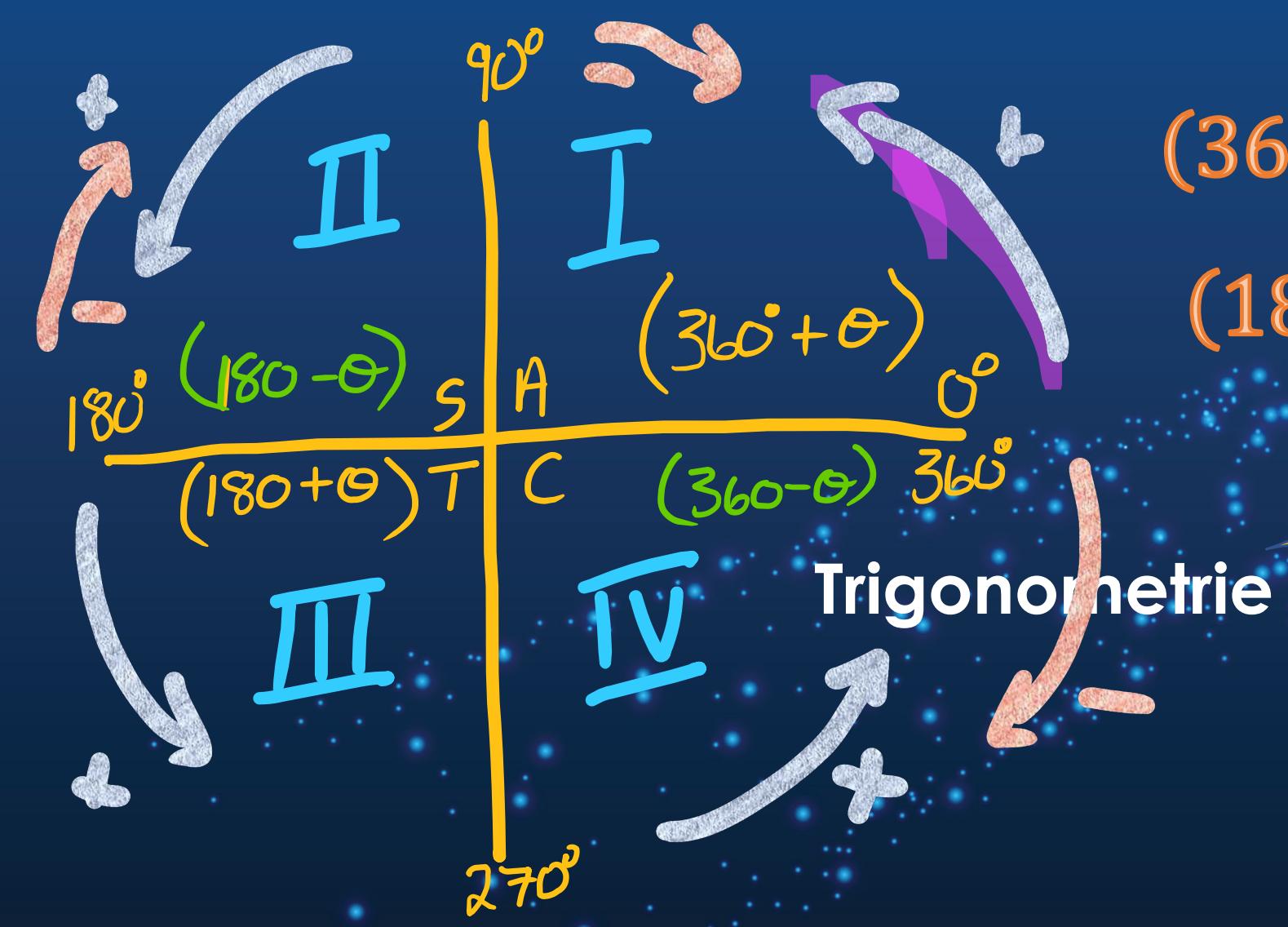
Trigonometrie



Oppervlakte Reël

$$Oppvl = \frac{1}{2}ab \sin C$$

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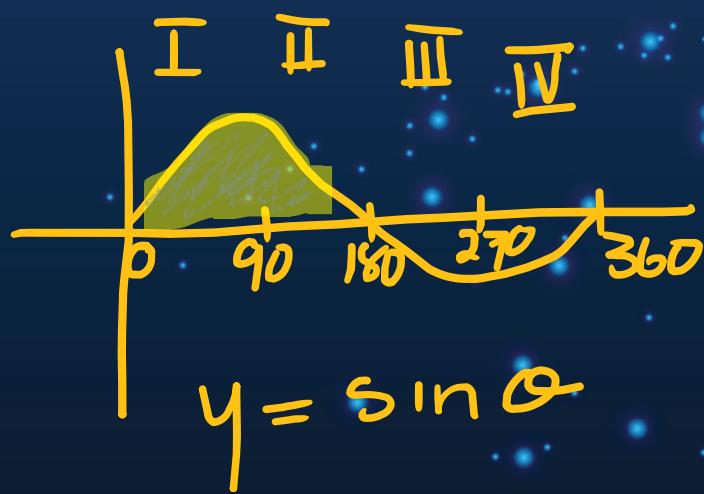
$$(360^\circ \pm \theta)$$

$$(180^\circ \pm \theta)$$

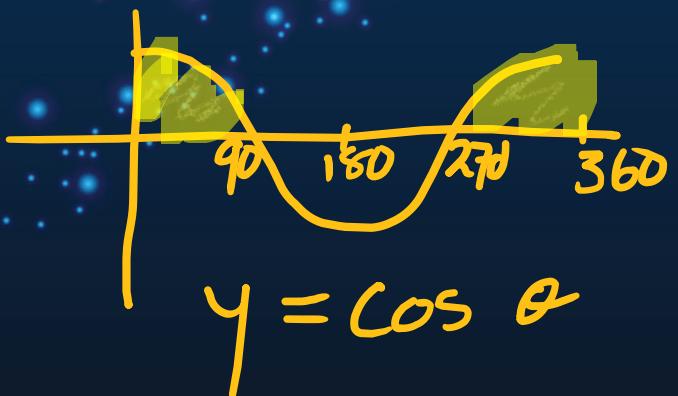
Reduksie
Formule

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CAST Reel → Positief



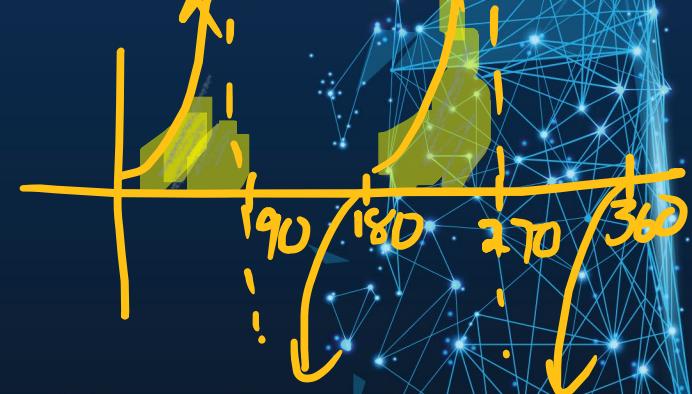
Trigonometrie

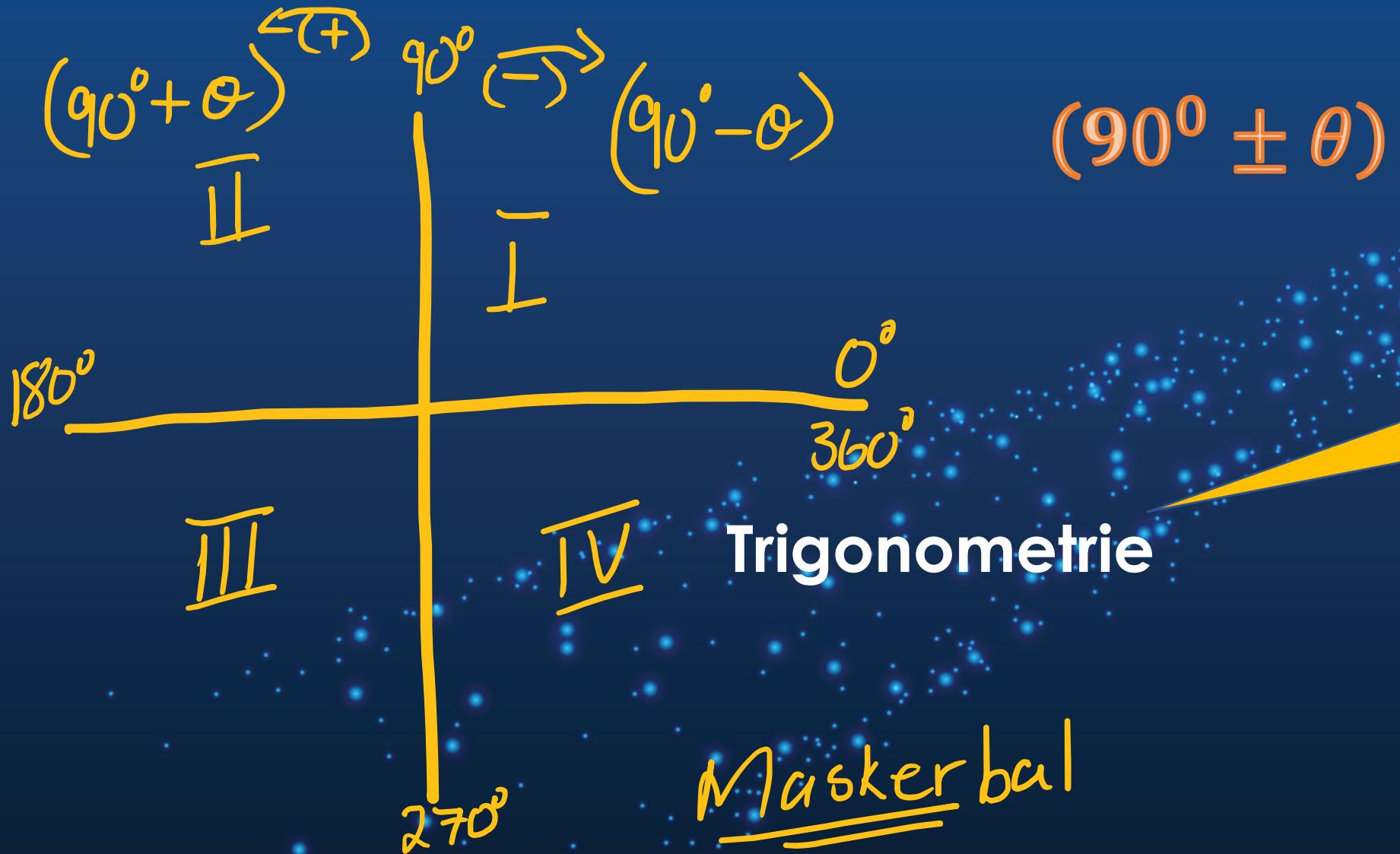


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Reduksie
Formule

$$y = \tan \theta$$





Trigonometrie

Maskerbal

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

Identiteite

$$\tan x = \frac{\sin x}{\cos x}$$

$$\cos^2 \theta - \sin^2 \theta = \cos 2\theta$$

$$\sin 2\theta = 2 \sin \theta \cos \theta$$

Trigonometrie

$$\cos(\theta \pm \beta) = \cos \theta \cos \beta \mp \sin \theta \sin \beta$$

$$\sin(\theta \pm \beta) = \sin \theta \cos \beta \pm \cos \theta \sin \beta$$

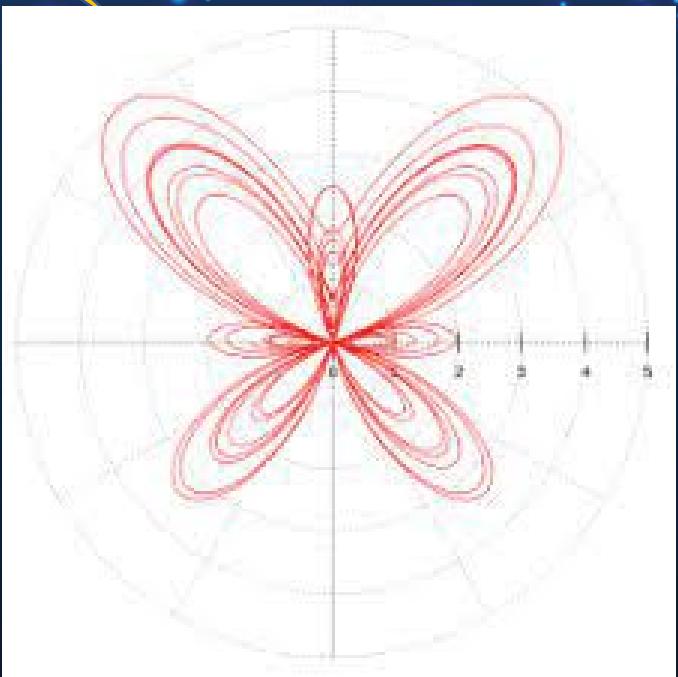
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Grafieke

$y = \sin x$



$y = \cos x$

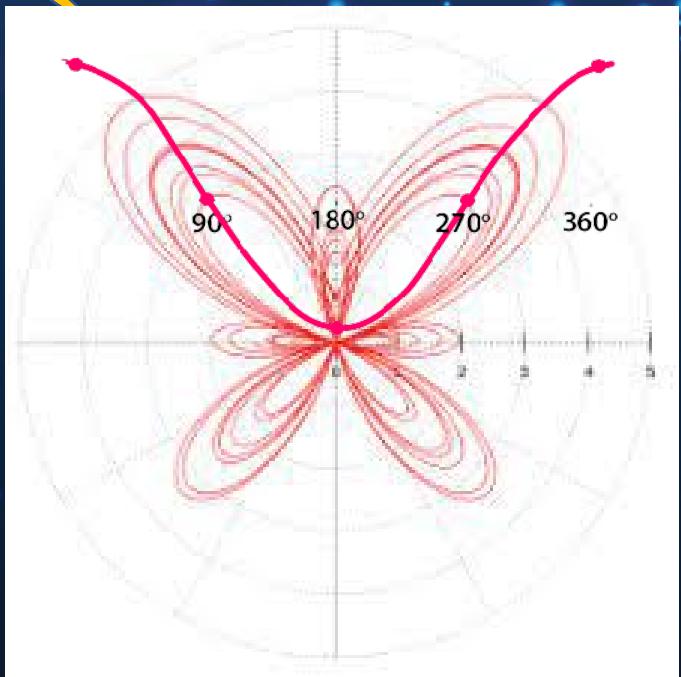


$y = \tan x$

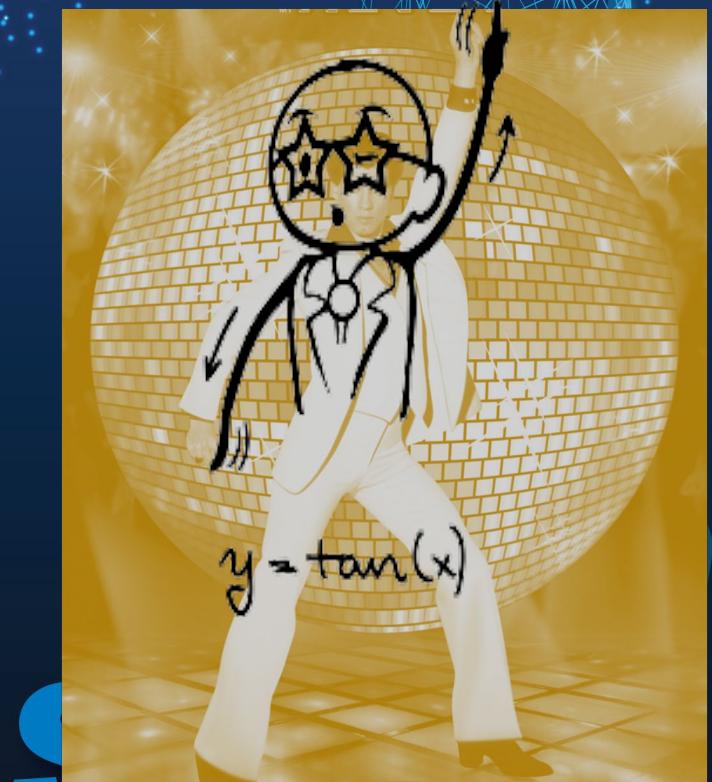


Grafieke

$y = \sin x$



$y = \tan x$



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