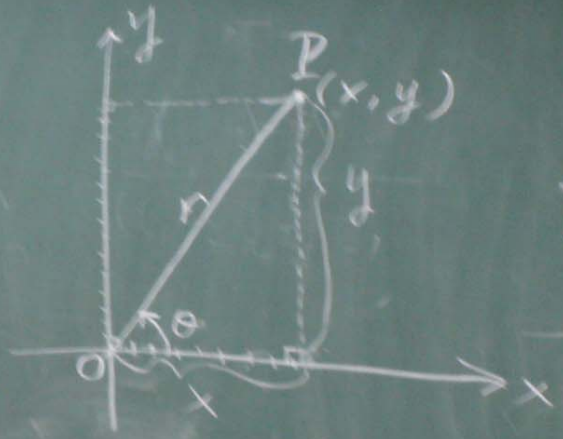
座標
三角
向量




P：(x, y) 卡氏座標
(r, θ) 極座標

$x = r\cos\theta$

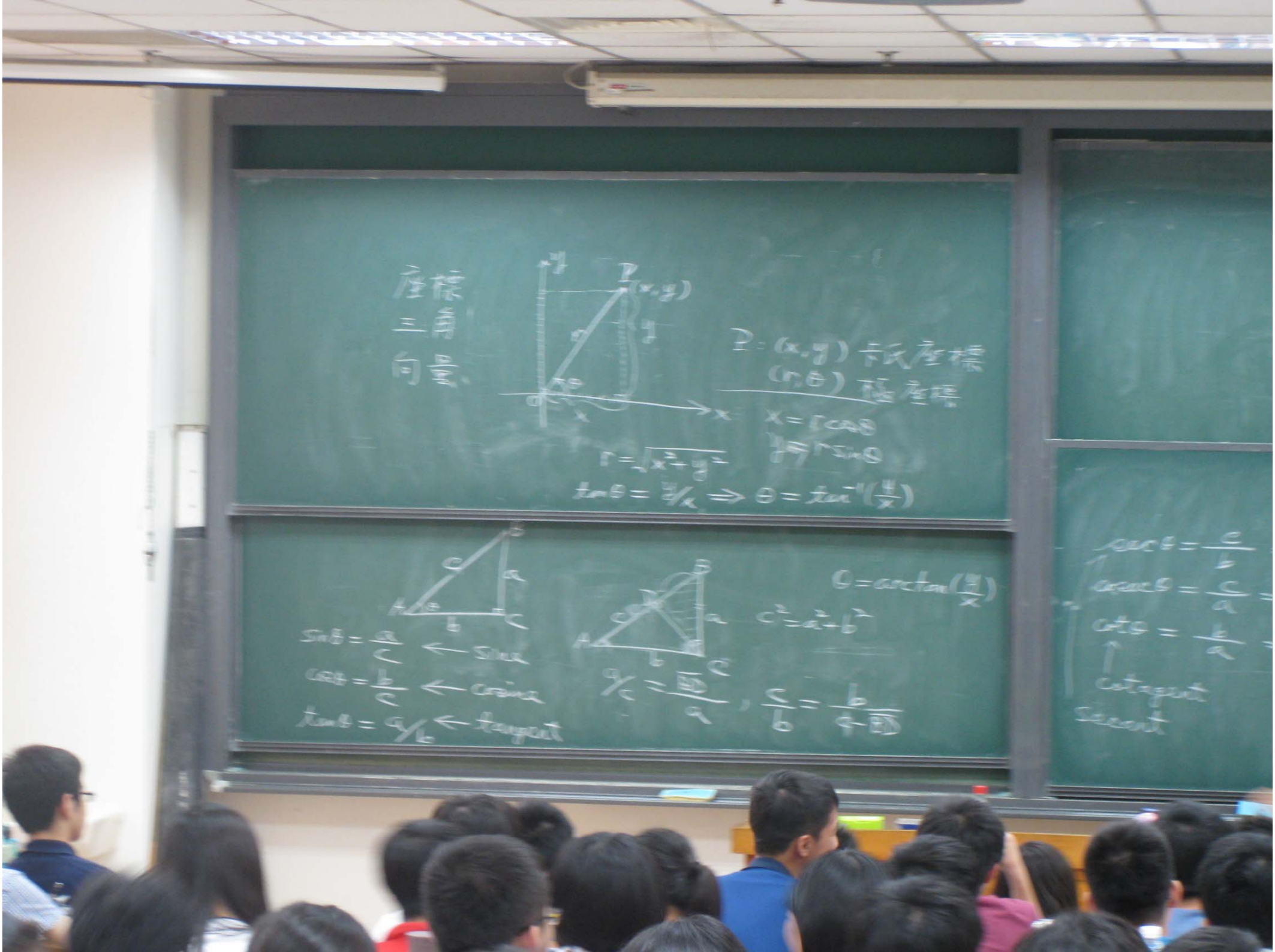
$y = r\sin\theta$

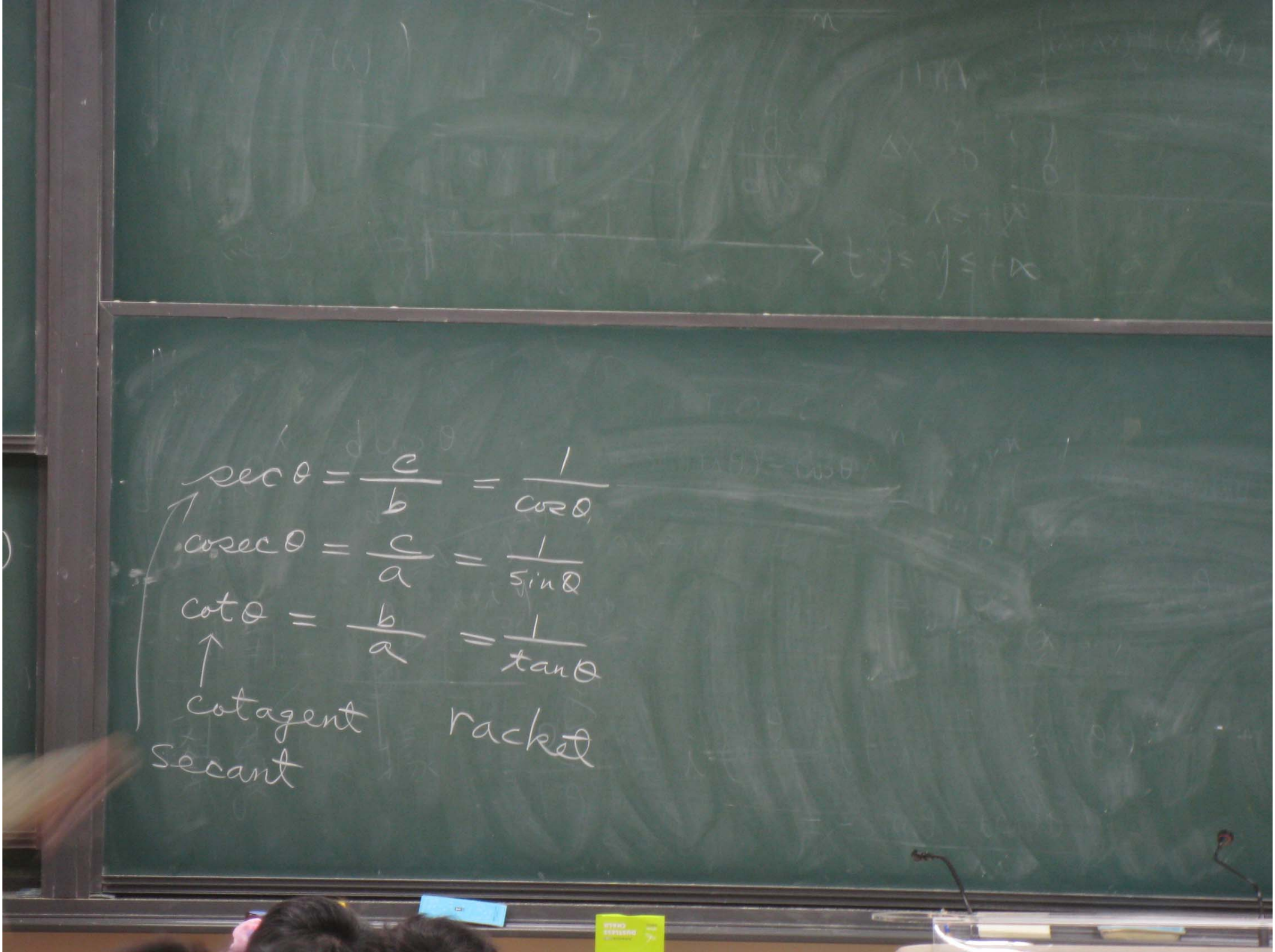
$r = \sqrt{x^2 + y^2}$

$\tan\theta = y/x \Rightarrow \theta = \tan^{-1}\left(\frac{y}{x}\right)$


$\theta = \arctan\left(\frac{y}{x}\right)$

$c^2 = a^2 + b^2$


座標
三角
向量
P:(x,y) 卡氏座標
(r,θ) 極座標
x = r cosθ
y = r sinθ
r = √(x² + y²)
tanθ = y/x ⇒ θ = tan⁻¹(y/x)
θ = arctan(y/x)
c² = a² + b²
sinθ = a/c ← Sine
cosθ = b/c ← Cosine
tanθ = a/b ← tangent
a/c = √(b²)/a , c/b = b/√(b²)
secθ = c/b
cscθ = c/a
cotθ = b/a
Cotangent
Cosecant

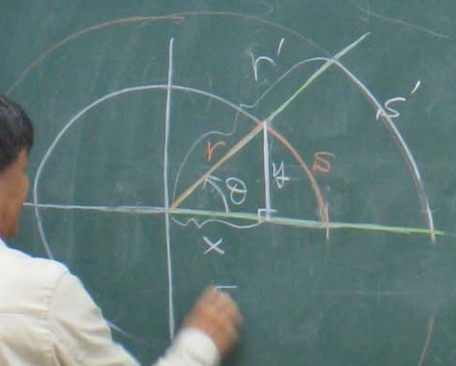

$\sec\theta = \frac{c}{b} = \frac{1}{\cos\theta}$
$\operatorname{cosec}\theta = \frac{c}{a} = \frac{1}{\sin\theta}$
$\cot\theta = \frac{b}{a} = \frac{1}{\tan\theta}$
cotagent
racket
secant

$$\sec\theta = \frac{c}{b} = \frac{1}{\cos\theta}$$

$$\operatorname{cosec}\theta = \frac{c}{a} = \frac{1}{\sin\theta}$$

$$\cot\theta = \frac{b}{a} = \frac{1}{\tan\theta}$$

racket




$$\theta = \frac{s}{r} = \frac{s'}{r'} \text{ (rad.)}$$

$\theta = 360^\circ \Rightarrow \theta = \frac{2\pi r}{r} = 2\pi$ (rad)

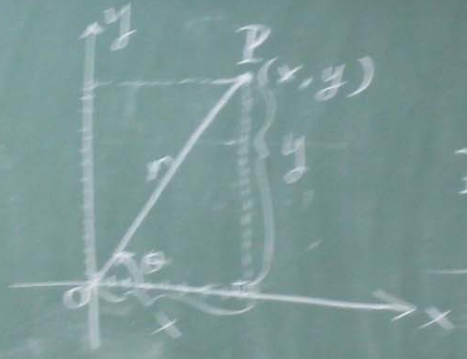
$180^\circ \Rightarrow \theta = \pi$

$90^\circ \Rightarrow \theta = \pi/2$

$60^\circ \Rightarrow \theta = \pi/3$

$\pi = 3.141569\cdots$

座標
三角
向量、

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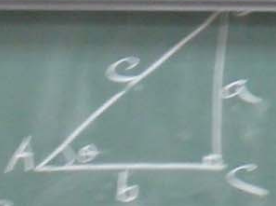
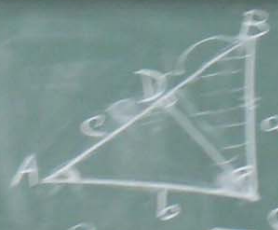
$r = \sqrt{x^2+y^2}$

$\tan\theta = y/x \Rightarrow \theta = \tan^{-1}\left(\frac{y}{x}\right)$

$0° < \theta < 90°$




$\theta = \arctan\left(\frac{y}{x}\right)$




$c^2 = a^2 + b^2$

$\begin{cases} \sin\theta = \frac{a}{c} \leftarrow \sin\alpha \\ \cos\theta = \frac{b}{c} \leftarrow \cos\alpha \\ \tan\theta = a/b \leftarrow \text{tangent} \end{cases}$

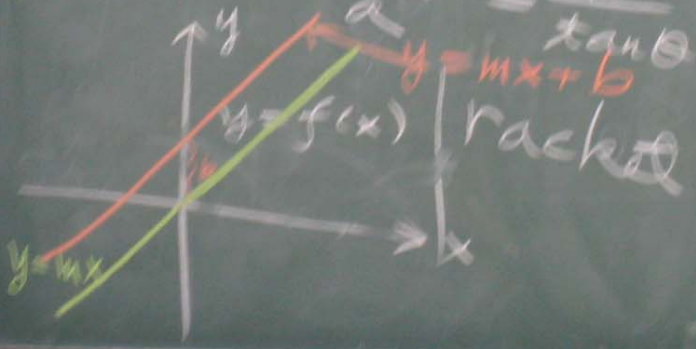
$a/c = \frac{\overline{BD}}{a}$, $\frac{c}{b} = \frac{b}{a+\overline{BD}}$

$\sin\theta \approx \theta$

$\sec\theta = \frac{c}{b} = \frac{1}{\cos\theta}$

$\operatorname{cosec}\theta = \frac{c}{a} = \frac{1}{\sin\theta}$

$\cot\theta = \frac{b}{a} = \frac{1}{\tan\theta}$



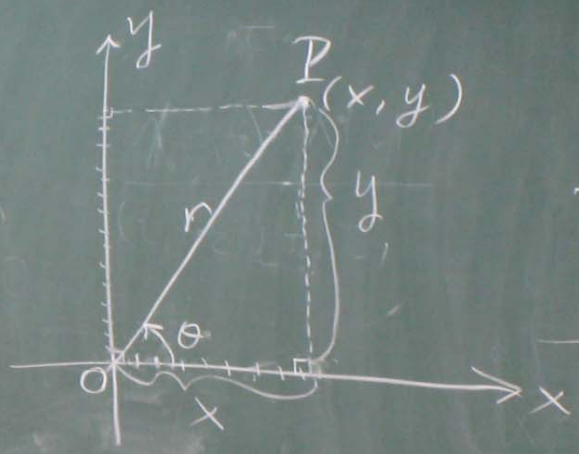

rachel


$f(x) : x \longrightarrow f(x)$

座標

三角

向量

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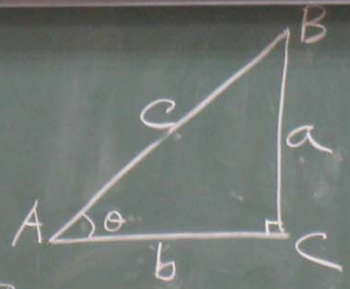
$y = r\sin\theta$

$r = \sqrt{x^2 + y^2}$

$\tan\theta = y/x \Rightarrow \theta = \tan^{-1}\left(\frac{y}{x}\right)$

$\theta = 10^\circ$

$\sin 10^\circ \neq 10^\circ - \frac{(10^\circ)^2}{3!} + \cdots$




$0^\circ < \theta < 90^\circ$

$\begin{cases} \sin\theta = \frac{a}{c} \leftarrow \text{sine} \\ \cos\theta = \frac{b}{c} \leftarrow \text{cosine} \\ \tan\theta = a/b \leftarrow \text{tangent} \end{cases}$

$\sin 10^\circ = 0.17365$

$\sin(0.17365) = 0.17365$

弧度

$\sin\theta = \frac{\theta}{1!} - \frac{\theta^3}{3!} + \frac{\theta^5}{5!} - \frac{\theta^7}{7!} + \frac{\theta^9}{9!} - \cdots$

$n! = n(n-1)(n-2)\cdots 2\cdot 1$

Taylor series