△(델타) = 변화량

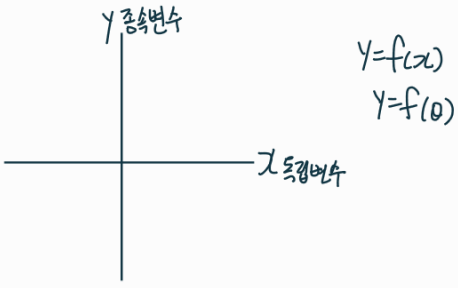
미분 = 기울기 $= \frac{\Delta y}{\Delta x}$

v = 속도 $= \frac{\Delta s}{\Delta t}$ (속도 / 시간)
벡터시티

천안 → 부산
400km
5시간

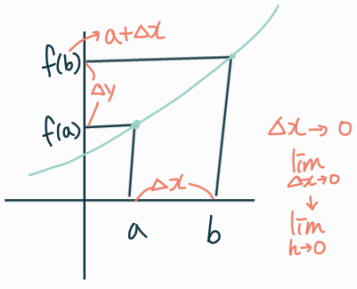
$\fallingdotseq \frac{400km}{5h}$ = 평균속도 (평균변화량)

↓ 순간속도 (미분) 찰기



$y=f(x)$
$y=f(\theta)$

빅데이터 하면 $f(x,y)$
입력이 벡터로 들어옴

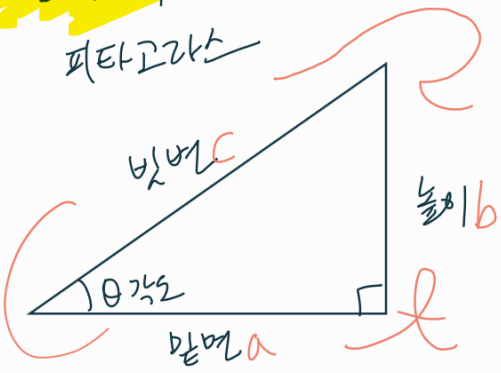


$\Delta x \to 0$
$\lim_{\Delta x \to 0}$
↓
$\lim_{h \to 0}$

$\frac{f(a+h)-f(a)}{b-a=h}$

삼각함수

피타고라스



$\cos\theta = \frac{a}{c}$

$\sin\theta = \frac{b}{c}$

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

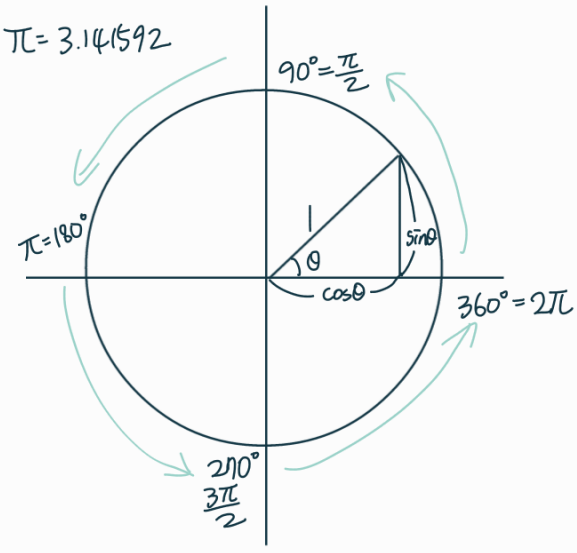
$b = \sin\theta$

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

$(\cos\theta)^2 + \sin^2\theta = 1$ 항등식

$\cos^2\theta$

$\tan\theta = \frac{\sin\theta}{\cos\theta} = \frac{\text{높}}{\text{밑}} = \frac{b \times c}{c \times a} = \frac{b}{a}$



$\cos 45° = \frac{1}{\sqrt{2}}$

$\sin 45° = ?$

$\left(\frac{1}{\sqrt{2}}\right)^2 + \square^2 = 1$

$\square^2 = 1 - \frac{1}{2}$

$= \frac{1}{2}$

$\cos 30° = \frac{\sqrt{3}}{2}$ ↓ $\sin 30° = ?$

힌트 $\square^2 = 3$, $\square = \sqrt{3}$

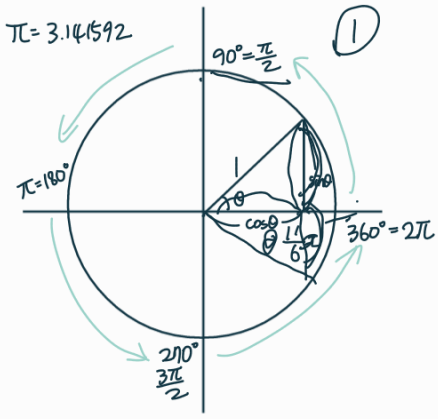
$a^2 + b^2 = c^2$ 피타고라스의 법칙

$\cos 30^2 + \sin 30^2 = 1$

$\frac{3}{4} = \left(\frac{\sqrt{3}}{2}\right)^2 + (\sin 30)^2 = 1$

$(\sin 30)^2 = 1 - \frac{3}{4} = \frac{1}{4}$

$\sin 30° = \sqrt{\frac{1}{4}} = \frac{1}{\sqrt{4}} = \frac{1}{2}$ Wow.



$\cos 45° = \frac{1}{\sqrt{2}}$

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$\left(\frac{1}{\sqrt{2}}\right)^2 + \square^2 = 1$

$\square^2 = 1 - \frac{1}{2}$

$= \frac{1}{2}$

$\cos 30° = \frac{\sqrt{3}}{2}$ ↓ $\sin 30° = ?$

힌트 $\square^2 = 3$, $\square = \sqrt{3}$

$-\frac{1}{2} + \frac{1}{2}$

$\sqrt{\frac{1}{4}} + \frac{1}{2}$

$\frac{1}{2}$

$A = B$

$\sqrt{A} = \sqrt{B}$

$\frac{1}{\sqrt{4}} \pm 2$

$\cos 30^2 + \sin 30^2 = 1$

$\sin 30 = \sqrt{\frac{1}{4}}$

$\left(\frac{\sqrt{3}}{2}\right)^2 + (\sin 30)^2 = \frac{3}{4} + \frac{1}{4}$