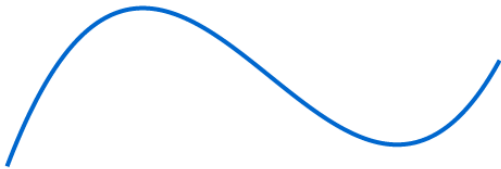


매개변수 함수의 미분

(Derivatives of parametric functions)

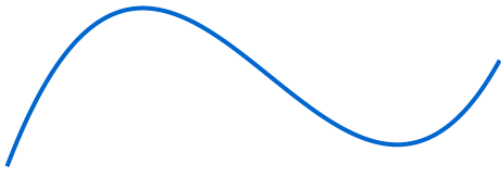
Derivatives of parametric functions

Derivatives of parametric functions



Derivatives of parametric functions

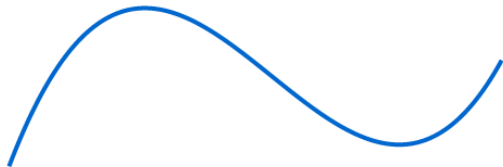
$$y = F(x)$$



Derivatives of parametric functions

$$y = F(x)$$

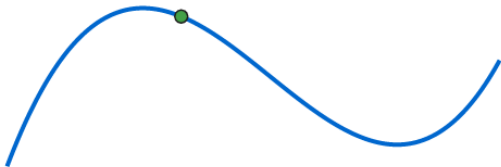
$$\begin{cases} x = f(t) \\ y = g(t) \end{cases}$$



Derivatives of parametric functions

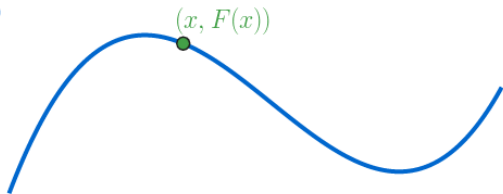
$$y = F(x)$$

$$\begin{cases} x = f(t) \\ y = g(t) \end{cases}$$



Derivatives of parametric functions

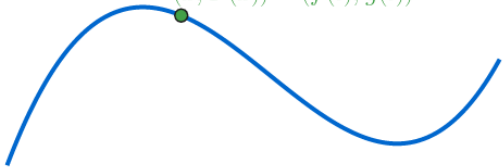
$$\begin{cases} y = F(x) \\ x = f(t) \\ y = g(t) \end{cases}$$



Derivatives of parametric functions

$$y = F(x)$$

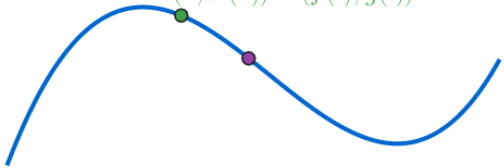
$$\begin{cases} x = f(t) \\ y = g(t) \end{cases}$$

$$(x, F(x)) = (f(t), g(t))$$


Derivatives of parametric functions

$$y = F(x)$$

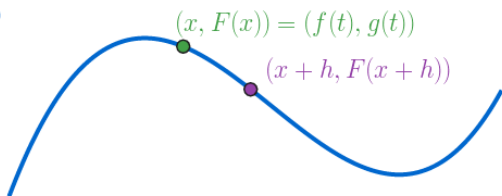
$$\begin{cases} x = f(t) \\ y = g(t) \end{cases}$$

$$(x, F(x)) = (f(t), g(t))$$


Derivatives of parametric functions

$$y = F(x)$$

$$\begin{cases} x = f(t) \\ y = g(t) \end{cases}$$



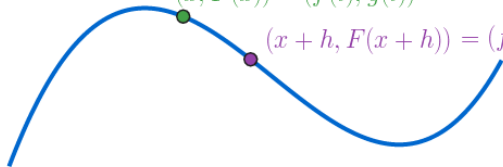
Derivatives of parametric functions

$$y = F(x)$$

$$\begin{cases} x = f(t) \\ y = g(t) \end{cases}$$

$$(x, F(x)) = (f(t), g(t))$$

$$(x + h, F(x + h)) = (f(t + l), g(t + l))$$



Derivatives of parametric functions

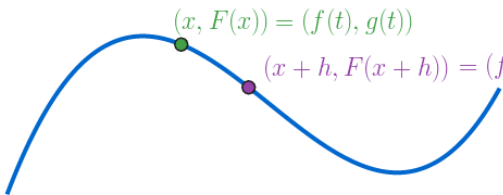
$$y = F(x)$$

$$\begin{cases} x = f(t) \\ y = g(t) \end{cases}$$

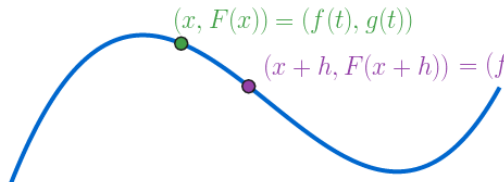
$$(x, F(x)) = (f(t), g(t))$$

$$(x + h, F(x + h)) = (f(t + l), g(t + l))$$

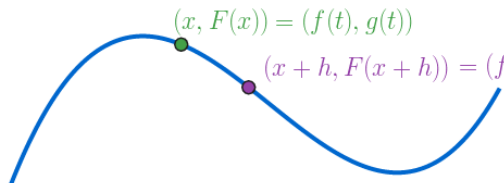
$$\frac{dy}{dx}$$



Derivatives of parametric functions

$$y = F(x)$$
$$\begin{cases} x = f(t) \\ y = g(t) \end{cases}$$

$$(x, F(x)) = (f(t), g(t))$$
$$(x+h, F(x+h)) = (f(t+l), g(t+l))$$
$$\frac{dy}{dx} = \lim_{h \rightarrow 0} \frac{F(x+h) - F(x)}{h}$$

Derivatives of parametric functions

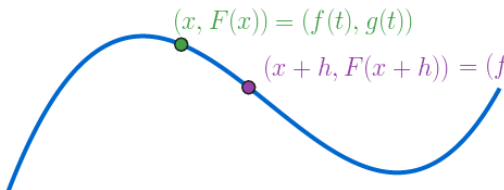
$$y = F(x)$$
$$\begin{cases} x = f(t) \\ y = g(t) \end{cases}$$


$(x, F(x)) = (f(t), g(t))$

$(x+h, F(x+h)) = (f(t+l), g(t+l))$

$$\frac{dy}{dx} = \lim_{h \rightarrow 0} \frac{F(x+h) - F(x)}{h} = \lim_{h \rightarrow 0} \frac{F(x+h) - F(x)}{x+h-x}$$

Derivatives of parametric functions

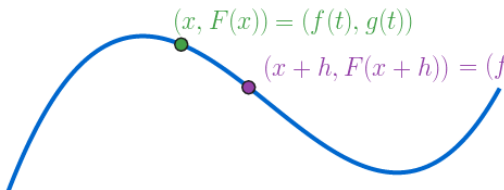
$$y = F(x)$$
$$\begin{cases} x = f(t) \\ y = g(t) \end{cases}$$


$(x, F(x)) = (f(t), g(t))$

$(x+h, F(x+h)) = (f(t+l), g(t+l))$

$$\frac{dy}{dx} = \lim_{h \rightarrow 0} \frac{F(x+h) - F(x)}{h} = \lim_{h \rightarrow 0} \frac{F(x+h) - F(x)}{x+h-x} = \lim_{l \rightarrow 0} \frac{g(t+l) - g(t)}{f(t+l) - f(t)}$$

Derivatives of parametric functions

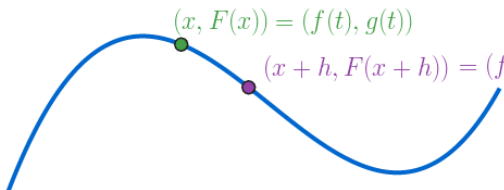
$$y = F(x)$$
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$(x, F(x)) = (f(t), g(t))$

$(x+h, F(x+h)) = (f(t+l), g(t+l))$

$$\begin{aligned} \frac{dy}{dx} &= \lim_{h \rightarrow 0} \frac{F(x+h) - F(x)}{h} = \lim_{h \rightarrow 0} \frac{F(x+h) - F(x)}{x+h-x} = \lim_{l \rightarrow 0} \frac{g(t+l) - g(t)}{f(t+l) - f(t)} \\ &= \lim_{l \rightarrow 0} \frac{\frac{g(t+l) - g(t)}{l}}{\frac{f(t+l) - f(t)}{l}} \end{aligned}$$

Derivatives of parametric functions

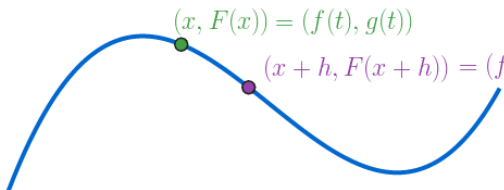
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$$\begin{aligned} \frac{dy}{dx} &= \lim_{h \rightarrow 0} \frac{F(x+h) - F(x)}{h} = \lim_{h \rightarrow 0} \frac{F(x+h) - F(x)}{x+h-x} = \lim_{l \rightarrow 0} \frac{g(t+l) - g(t)}{f(t+l) - f(t)} \\ &= \lim_{l \rightarrow 0} \frac{\frac{g(t+l) - g(t)}{l}}{\frac{f(t+l) - f(t)}{l}} = \frac{g'(t)}{f'(t)} \end{aligned}$$

Derivatives of parametric functions

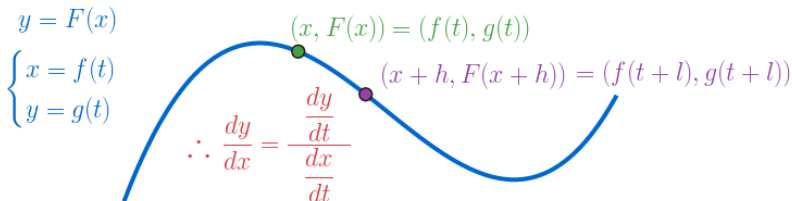
$$\begin{cases} y = F(x) \\ x = f(t) \\ y = g(t) \end{cases}$$


$(x, F(x)) = (f(t), g(t))$

$(x+h, F(x+h)) = (f(t+l), g(t+l))$

$$\begin{aligned} \frac{dy}{dx} &= \lim_{h \rightarrow 0} \frac{F(x+h) - F(x)}{h} = \lim_{h \rightarrow 0} \frac{F(x+h) - F(x)}{x+h-x} = \lim_{l \rightarrow 0} \frac{g(t+l) - g(t)}{f(t+l) - f(t)} \\ &= \lim_{l \rightarrow 0} \frac{\frac{g(t+l) - g(t)}{l}}{\frac{f(t+l) - f(t)}{l}} = \frac{g'(t)}{f'(t)} = \frac{\frac{dy}{dt}}{\frac{dx}{dt}} \end{aligned}$$

Derivatives of parametric functions



$$\begin{aligned} \frac{dy}{dx} &= \lim_{h \rightarrow 0} \frac{F(x+h) - F(x)}{h} = \lim_{h \rightarrow 0} \frac{F(x+h) - F(x)}{x+h-x} = \lim_{l \rightarrow 0} \frac{g(t+l) - g(t)}{f(t+l) - f(t)} \\ &= \lim_{l \rightarrow 0} \frac{\frac{g(t+l) - g(t)}{l}}{\frac{f(t+l) - f(t)}{l}} = \frac{g'(t)}{f'(t)} = \frac{\frac{dy}{dt}}{\frac{dx}{dt}} \end{aligned}$$

AlgeoMath: <http://me2.do/5SsugsHe>

YouTube: <https://youtu.be/7I1SAFzZ6z4>

Click or paste URL into the URL search bar, and you can see a picture moving.