$$\log_{10}^{3} + \log_{10}^{2} = \log_{10}^{3\cdot 2} = \log_{10}^{6}$$

$$\log_{e}^{5\cdot 3} = \log_{e}^{5} + \log_{e}^{3}$$

$$\log_{10}^{10} = 1$$

$$\log_{10}^{100} = \log_{10}^{10^2} = 2\log_{10}^{10} = 2$$

$$\log_{10}^{1000} = \log_{10}^{10^3} = 3\log_{10}^{10} = 3$$

$$\log_{2}^{8} = 3 = \log_{2}^{2^3}$$

$(x+a)(x-a)=x^2-a^2$

$(x+a)^2=x^2+2ax+a^2$ 완전제곱식

$(x+a)(x+a)=x^2+ax+ax+a^2$

① $-2(x-2)=-2x+4$

② $(x+1)(x-1)=x^2+x-x-1$

$=x^2-1$

③ $(x+1)^2=(x+1)(x+1)=x^2+2x+1$

④ $3^2\div2^5=\dfrac{9}{2^5}=\dfrac{9}{32}$

⑤ $e^3\times e^5=e^{(3+5)}=e^8$

⑥ $x^2+2x+1=?=(x+1)^2$

⑦ $y=3x^2+6x$

$=(x+\square)^2+\triangle$

$=3(x^2+2x+1-1)$

$=3(x+1)^2-3$

$\rightarrow x^2+2x+1$

$3x^2+6x+3-3$

~진수

	2^3 2^2 2^1 2^0			
2진수	1100	0011	1111	1010
16진수	12	3	15	10
	C	3	F	A

A23 = 1010 0010 0011

BEE = 1011 1110 1110

70C558

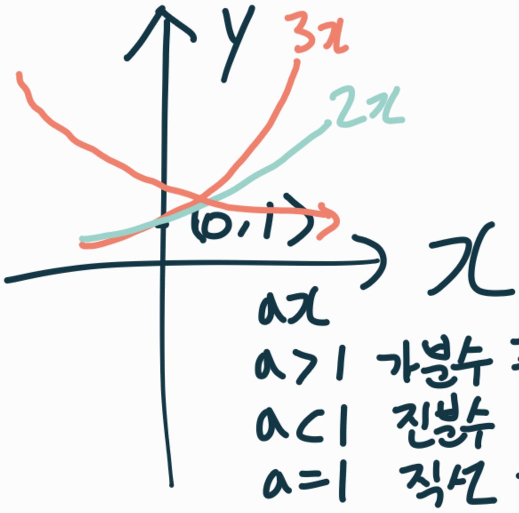
= 0111 0000 1100 0101 0101 1000

1 byte = 8 bit

4 byte = 16 bit

$y = f(x)$
↑ ↑
function

$y = 2^x$
$y = 3^x$



a^x
$a>1$ 가분수 증가
$a<1$ 진분수 감소
$a=1$ 직선 항상 1

$2^0, 3^0$ 생각하면 무조건 y의 1지점을 지남

$2^2 < 2^3$ 이니까

$y = \left(\frac{1}{2}\right)^x$ 은 x가 커질수록 y가 작아짐
└→ 기울기도 감소

$\frac{9}{10}$ - 진분수 → 이게 1보다 작으면 감소
크면 감소

$\left(1^{\frac{1}{7}}\right)^7 = 1 = \sqrt[7]{1}$

생략
$\sqrt[2]{2} = \sqrt{2} \rightarrow (\sqrt{2})^2 = 2$

$\sqrt[7]{1} = 1^{\frac{1}{7}}$

$\sqrt[5]{3^5} = 3$
$\left(3^{\frac{1}{5}}\right)^5$

$\left(1^{\frac{1}{7}}\right)^7 = 1$
$\sqrt[7]{1}$

~지수 End~

~로그~

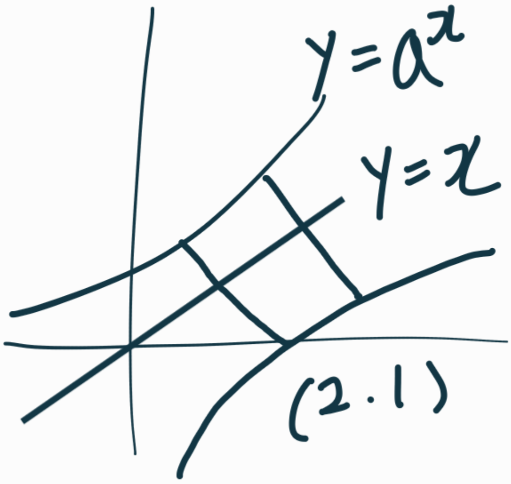
외우기

$\log_a b = x$

지수 (b), 밑 (a)

$\Updownarrow$

$a^x = b$



log 쓰는 이유 → 안쓰면

x가 커질수록 기하급수적으로 커짐

→ 메모리 용량을 줄일 수 있음.

$\log_a b = 0$, $b = a^0 = 1$

$\log_a b^1 = 0$

100 → 100

$\log_e e^1 = x$

$\log_{10} 1000 = \log 10^3 = \frac{3\log 10}{1}$

$\log \frac{b}{a} = ? = \log(b \times \frac{1}{a})$

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

$= \log b + \log \frac{1}{a}$

$= \log b + \log a^{-1}$

$= \log b - \log a$

* 밑 안쓰면 10

$\log_{10} x + \log_{10} y$

$= \log_{10} xy$

$= \log 10 = 1 = \log_{10} 10^b = 1x$

$$\log_a b = \frac{\log_c b}{\log_c a}$$

$$\log_8 16 = \frac{\log_2 16}{\log_2 8} = \frac{\log_2 2^4}{\log_2 2^2} = \frac{4}{3}$$

문제)

$\log 2 = 0.3$ $\quad$ log

$\log 3 = 0.4$

① $\log_2 9 = ?$ $\quad \boxed{\frac{2\times 0.4}{0.3}} = \frac{8}{3}$ $\quad = \frac{\log 3\times 2}{\log 2}$

② $\log_8 4 = ?$ $\quad \frac{\log_2 4}{\log_2 8} = \boxed{\frac{2}{3}}$

③ $\log_{16} 4 = ?$ $\quad \frac{\log_2 4}{\log_2 16} = \frac{\cancel{2}}{\cancel{4}} = \boxed{\frac{1}{2}}$

④ $\log_9 8 = ?$ $\quad \frac{\log 2^3}{\log 9} = \boxed{\frac{3\times 0.3}{(0.4)\times 2}}$

3 $\log_2 9 = \frac{\log_{10} 9}{\log_{10} 2} = \frac{\quad}{0.3}$

4 $\frac{\log_{10} 8}{\log_{10} 9} =$