

①  $\exists a \in \mathbb{R}$  s.t.  $a > 0$  and  $\forall n \in \mathbb{R}$ , if  $n \geq a$ , then  $2^{-n} < \frac{1}{100}$

Neg  $\forall a \in \mathbb{R}$  s.t.  $a > 0$  and  $\exists n \in \mathbb{R}$ ,  $n \geq a$  &

$$2^{-n} \geq \frac{1}{100}$$

② •  $\forall b \in B, b \leq a$   
•  $\forall s \in \mathbb{R}$ , if  $s < a$  then  $\exists b \in B$  s.t.  $s < b$

→ conditions for  $a \in \mathbb{R}$  the supremum, or least upper bound of  $B$  [ $\sup(B)$ ]

①  $A_1 = \{n \in \mathbb{R} \mid e^n \leq 2\}$

$$a = \ln(2)$$

$$n \leq \sqrt{14}$$

$$a = 0.301$$

②  $a = b/8$

$$b = 0.301 / 0.2$$

$$s = (-\infty, 0.300)$$

$n \geq 0$   
 $\sin(2^n) \leq \sin(2^{n-1})$   
 $n = \frac{n-1}{n} < n-1$   
 $2^n \geq 0 \leq 1 < 2$

①

- Neg of stmt
- True
- ?

②