

1. 지수부등식

$$a > 1 : a^{f(x)} > a^{g(x)} \dots f(x) > g(x)$$

$$0 < a < 1 : a^{f(x)} > a^{g(x)} \dots f(x) < g(x)$$

2. 로그부등식

$$a > 1 : \log_a f(x) > \log_a g(x) \dots f(x) > g(x)$$

$$0 < a < 1 : \log_a f(x) > \log_a g(x) \dots f(x) < g(x)$$

예제1

$$2^x > 3 \rightarrow x > \log_2 3 \quad \log_2 x < 3 \dots 0 < x < 2^3$$

예제2

$$8^x - 3 \cdot 4^x + 2^{x+1} - 6 > 0$$

예제3

$$\log_{0.5}(x^2 - 19) - \log_{0.5}(x - 5) < \log_{0.5} 5$$

예제4

$$\log_3(x - 3) > \log_9(x - 1)$$

예제5

$$(\log_3 x)^2 < \log_3 x^4$$

예제6

$$x^{\log_2 x} < 8x^2$$

$$\Rightarrow \log_2 x^{\log_2 x} < \log_2 8x^2$$

$$(\log_2 x)^2 < 3 + 2\log_2 x \quad t^2 < 3 + 2t$$

$$t^2 - 2t - 3 < 0 \quad (t-3)(x+1) < 0$$

$$-1 < t < 3 \quad -1 < \log_2 x < 3$$

$$2^{-1} < x < 2^3$$