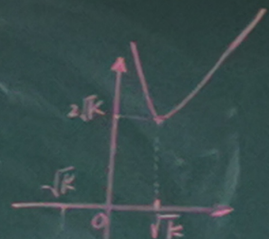
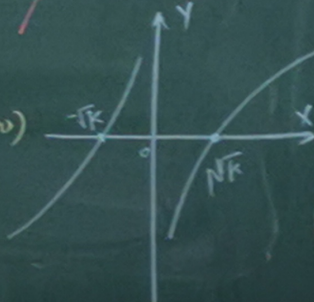


$$y = x + \frac{k}{x} \quad (k > 0)$$



$$y = x - \frac{k}{x} \quad (k > 0)$$



$$\begin{aligned} g(a) &= \frac{a^2}{4} - a + 1 \\ \therefore g(a)_{\min} &= g(2) = \frac{1}{4} \end{aligned}$$

$$\therefore \frac{a^2}{4} - a + 1 \geq \frac{1}{4}$$

$$\therefore M - m \geq \frac{1}{4}$$

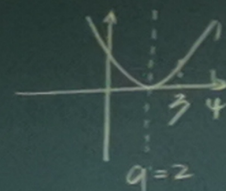
(II)  $2 \leq f(x) \leq 2$  在  $[1, 2]$  上恒成立

$$a_{\max} = 1$$

$$2 \leq x^2 - ax \leq 2$$

$$-x^2 - 2 \leq -ax \leq -x^2 + 2$$

$$\underbrace{x - \frac{2}{x}}_{\max} \leq a \leq \underbrace{x + \frac{2}{x}}_{\min} \text{ 在 } [1, 2] \text{ 上恒成立}$$





元素有限: 有限集

元素无限: 无限集

集合元素: 有限

$$\frac{1-x}{1+x} = x$$

$$1-x = x+x^2$$

$$x^2+x-1=0$$

$$x = \frac{-1 \pm \sqrt{2}}{2}$$

$$x = \phi$$

$$x \approx 0.618$$