

考察例題:

$$x > 0 \text{ 時 } f(x) = x^2 - 4x$$

$f(x) > x$ 的解集

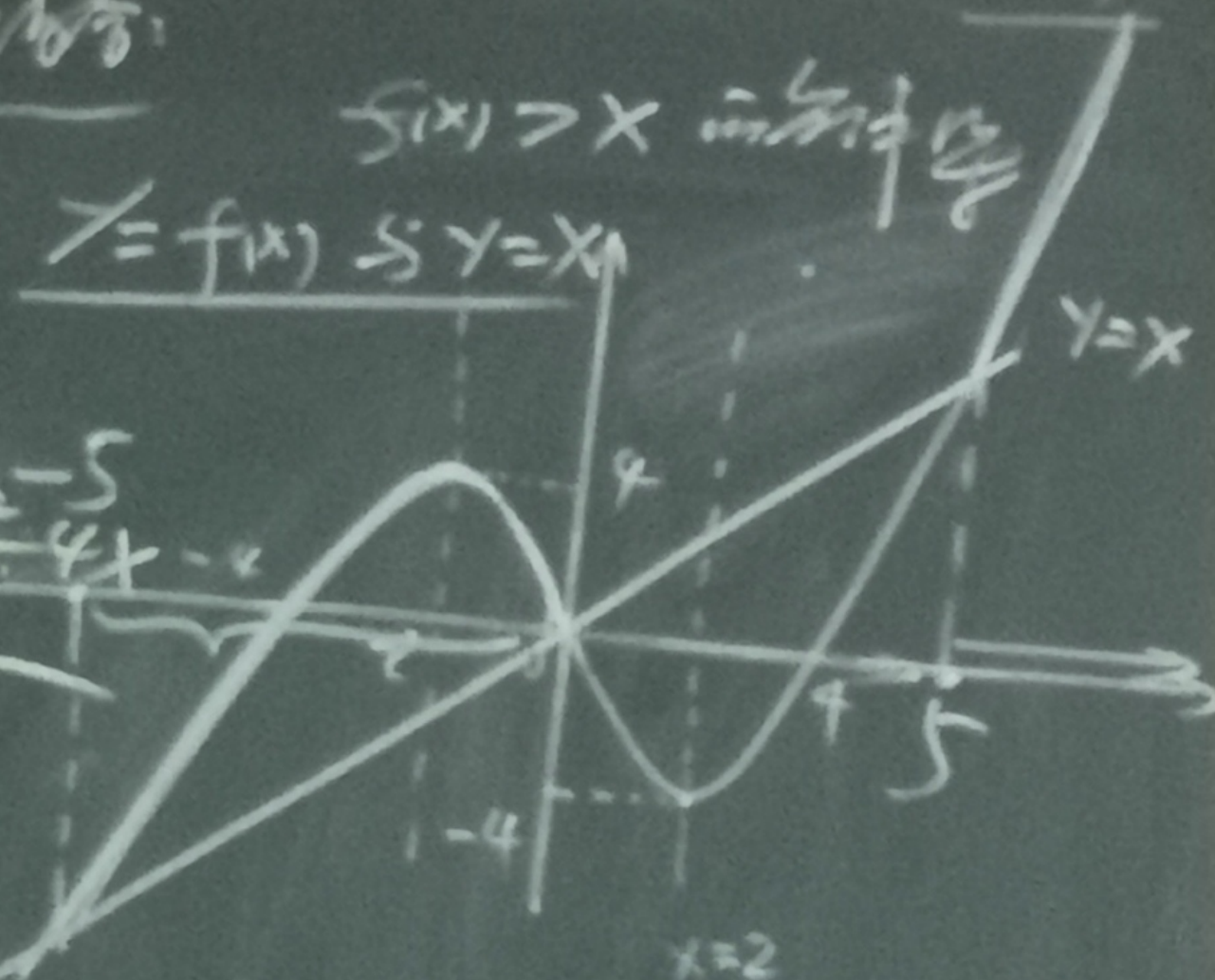
$$y = f(x) \text{ と } y = x$$

$x < 0 \text{ 時}$

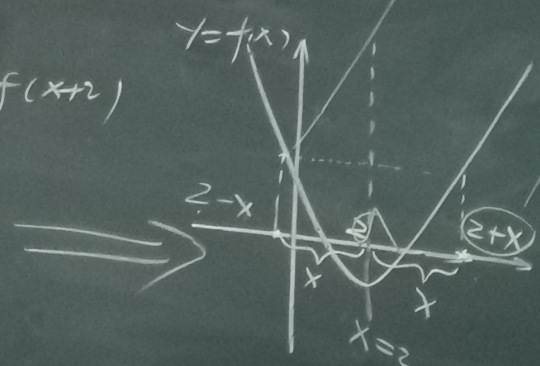
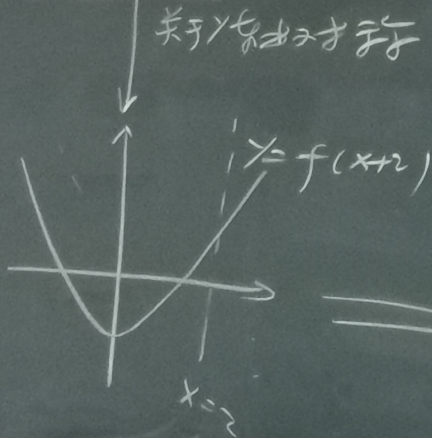
$$f(x) = -x^2 - 4x - 4$$

$x = 0 \text{ 時}$

$$f(0) = 0$$



$y = f(x+2)$ 关于 $x=2$ 对称
 $\Rightarrow f(x+2) = f(x+2)$



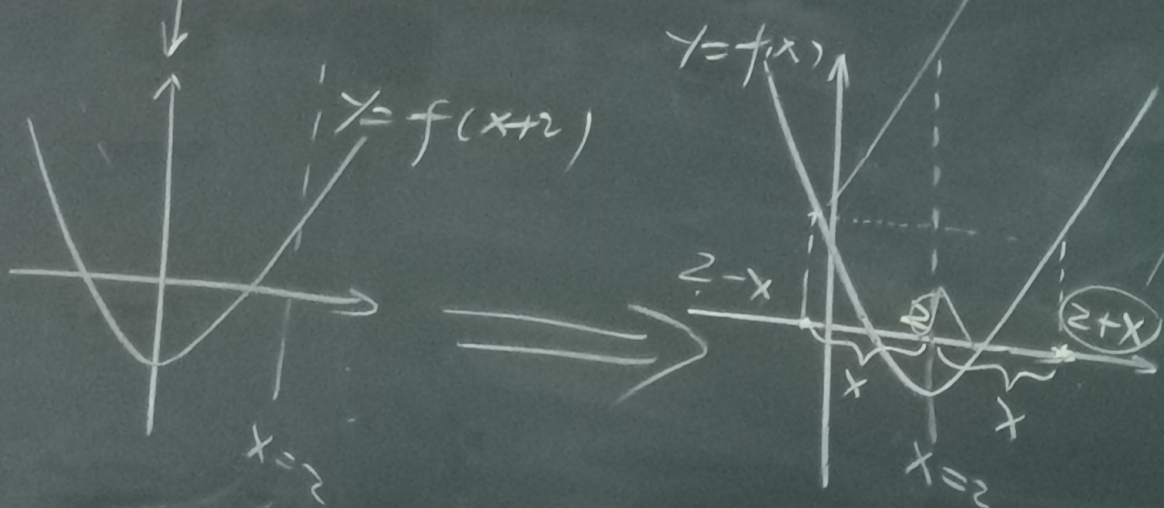
$f(x) \text{ 关于 } x=0 \text{ 对称} \Rightarrow f(-x) = f(x)$

$y = f(2x+1)$
 $\Rightarrow f(-2x+1) = f(2x+1)$

$$f(x) \text{ 为偶函数 } \Rightarrow f(-x) = f(x)$$

$y = f(x+2)$ 为偶函数
 关于 y 轴对称
 $y = f(x)$ 关于 $x=2$ 对称

$$f(x+2) = f(x+2)$$



$y = f(2x+1)$ 为奇函数
 $\Rightarrow f(-2x+1) = f(2x+1)$

1) $\therefore 3 \in M$

$M = \{3, -2, -\frac{1}{3}, \frac{1}{2}\}$

$\frac{1+3}{1-3} = -2 \in M$

$\frac{1-2}{1+2} = -\frac{1}{3} \in M$

$\frac{1}{2} \in M$

$3 \in M$

(2) $\because a \in M$

$$\therefore \frac{1+a}{1-a} \in M$$

$$\frac{1 + \frac{1+g}{1-g}}{1 - \frac{1+g}{1-g}} = -\frac{1}{a} \in \mathbb{M}$$

$$\frac{1 - \frac{1}{a}}{1 + \frac{1}{a}} = \frac{a-1}{a+1} \in \mathbb{N}$$

$$= a \in M$$

M 中元素个数为 4 的倍数