

作業

武國寧

1 試作出下列函數的圖像

(1) $y = \operatorname{sgn}(\sin(x))$

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

(3) $y = \sin(x^2)$

2 解答題

函 $f(x) = \frac{1}{1+x}$, 求 $f(2+x)$, $f(2x)$, $f(x^2)$, $f(f(x))$, $f(\frac{1}{f(x)})$

3 用區間表示下列不等式的解

(1) $|1 - x| - x \geq 0$

(2) $\left|x + \frac{1}{x}\right| \leq 6$

(3) $\sin x \geq \frac{\sqrt{2}}{2}$

4 求下列數集的上下確界，並依據定義加以驗證

(1) $S = \{x | x^2 < 2\}$

(2) $S = \{x | x = n!, n \in \mathbb{N}\}$

(3) $S = \{x | x \in (0, 1) \text{ and } x \text{ is irrational number}\}$

(4) $S = \left\{x | x = 1 - \frac{1}{2^n}, n \in \mathbb{N}\right\}$