作業

武國寧

1 試作出下列函數的圖像

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

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

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

2 解答題

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

3 用區間表示下列不等式的解

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

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

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

4 求下列數集的上下確界，並依據定義加以驗證

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

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

(3) $S = \{ x | x(0,1)\Omega!\Sigma x \}$

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