Answer all the following questions.

1. Find the natural domain and range of the following functions:

       i) $f(x) = \frac{1}{x-4}$ ii) $g(x) = \sqrt{x^2 - 4}$ **[2]**

2. Let $f(x) = \sqrt{x + 3}$ - 6 , Please, find the following: **[4]**

       i) The natural domain of the function.
       ii) f(1)
       iii) $f(m^2$-3)
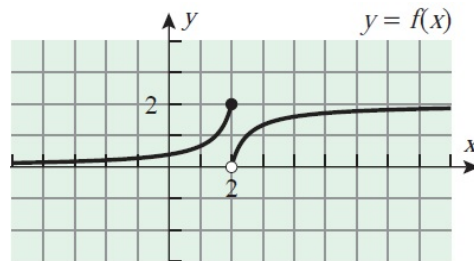   iv) f(x) = 3, if x = ...?

3. Roughly sketch the graph of the following function:

$$f(x) = \begin{cases} x, & 0 \le x < 1 \\ 2 - x, & 1 \le x \le 2 \end{cases}$$ **[3]**

4. Find the answer of the following questions from the graph given below: **[2]**

i) $\lim\limits_{x \to 2^-} f(x)$ ii) $\lim\limits_{x \to 2^+} f(x)$ iii) $\lim\limits_{x \to 2} f(x)$ iv) f(2)

5. In each part, classify the function as even, odd, or neither.   **[4]**

$i) x^2$ ii) 2   iii) $|x|$ iv) $\frac{x^5 - x}{1 + x^2}$