1. (10 pts) What is $\sin(5\pi/6)$?
   - A) $\frac{1}{2}$
   - B) $\frac{\sqrt{3}}{2}$
   - C) $\frac{\sqrt{2}}{2}$
   - D) $\frac{\sqrt{3}}{2}$

2. (10 pts) Is the statement
   \[ \forall x \in \mathbb{R}, \sqrt{x^2} = x \]
   true or false?
   - A) True
   - B) False

3. (40 pts) Find where the function
   \[ f(x) = \frac{x}{x^2 + x - 20} \]
   is positive and where it is negative.
   \[ f \text{ neg} \quad U \quad f \text{ pos} \quad 0 \quad f \text{ neg} \quad U \quad f \text{ pos} \]
   \[ -5 \quad 0 \quad 4 \]
   \[ f \text{ is negative on } (-\infty, -5) \quad \text{positive on } (-5, 0) \]
   \[ \text{negative on } (0, 4) \quad \text{positive on } (4, \infty) \]

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4. (40 pts) For the function $f$ whose graph is given, find the largest $\delta > 0$ such that

$$3 - \delta < x < 3 \Rightarrow |f(x) - 1| < 1.$$ 

Clearly explain why the number you propose for $\delta$ satisfy the condition and why it is the largest such number.

$$| \frac{f(x)}{1} - 1 | < 1$$

$$0 < \frac{f(x)}{1} < 2$$

$$| x - 3 | < \delta$$

$$\delta = 2$$