

Name: \_\_\_\_\_

PID: \_\_\_\_\_

1. (2 points) Find the slope of the secant line of  $f(x) = 1 - x^2$  through the points with  $x$  values  $x_1 = 1$  and  $x_2 = 2$ .

Solution:

$$m = \frac{f(2) - f(1)}{2 - 1} = \frac{-3 - 0}{1} = \boxed{-3}$$

2. (3 points) Evaluate the limit:  $\lim_{x \rightarrow \pi^-} \frac{|x - \pi|}{x - \pi}$ . Solution:

$$\lim_{x \rightarrow \pi^-} \frac{|x - \pi|}{x - \pi} = \lim_{x \rightarrow \pi^-} \frac{-(x - \pi)}{x - \pi} = \boxed{-1}$$

3. (2 points) Find all the vertical asymptotes of the curve  $y = \frac{x^2 - x}{(x^2 - 2x + 1)}$

Solution:

$$\frac{x^2 - x}{(x^2 - 2x + 1)} = \frac{x(x - 1)}{(x - 1)^2} = \frac{x}{(x - 1)}$$

So the V.A. is  $\boxed{x = -1}$