Name: _____ **Section:** _____

Clear your desk of everything excepts pens, pencils and erasers. If you have a question raise your hand and I will come to you.

1. (2 points) **Multiple Choice. No work needed. No partial credit available.** What is the following limit?

$$\lim_{x\to 2} \frac{x^2-4}{x-2}$$

A. 0

B. ∞

C. 4

D. This limit does not exist.

2. (1 point) **Fill-in-the-Blank. No work needed. No partial credit available.** The average rate of change of the function $f(x) = 300 + \cos x$ over the interval $[0, \frac{\pi}{2}]$ is $\frac{-2}{\pi}$

Extra Work Space.

(1) $\lim_{x\to 2} \frac{x^2-4}{x-2} = \lim_{x\to 2} \frac{(x+2)(x-2)}{x-2} = \lim_{x\to 2} x+2 = 2+2 = 4$

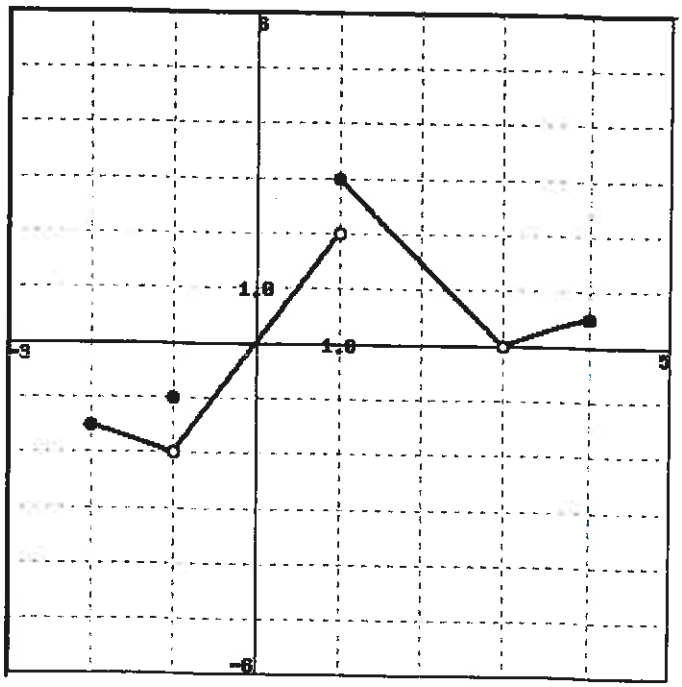
(2) $(a, F(a)) = (0, 301)$

$(b, F(b)) = (\frac{\pi}{2}, 300)$

$\frac{F(b)-F(a)}{b-a} = \frac{300-301}{\frac{\pi}{2}-0} = \frac{-1}{\frac{\pi}{2}} = \frac{-2}{\pi}$

Continue on to back side

3. (2 points) Using the graph of the function $F(x)$ below, find the following limits. You do not need to show your work. "Does not exist" is, if true, an acceptable answer.



$\lim_{x \to 1^+} F(x) =$ 3

$\lim_{x \to 1} F(x) =$ Does not exist

$\lim_{x \to -1} F(x) =$ -2

$F(1) =$ 3

Note that this does not say $\lim_{x \to 1^-} F(x)$.

____ / 5