

*This quiz is worth 10 points and you have 10 minutes to complete it. Show all work and circle your final answers.*

**Calculators are NOT allowed today.**

**1.** (3 pts) Write the negation of the statement “For all  $x$ , if  $x > 2$ , then  $x \geq 3$ .”

**2.** (3 pts) Sketch a graph of a function  $f(x)$  with  $\lim_{x \rightarrow 1^+} f(x) = -2$ ,  $\lim_{x \rightarrow 1^-} f(x) = 3$ , and  $f(1) = -2$ . (There may be more than one possible answer.)

**3.** (4 pts) Use definitions of limits to fill in the blanks.

(a)  $\lim_{x \rightarrow 3} (4 - x^2) = -5$  means:

For all \_\_\_\_\_, there is some \_\_\_\_\_ such that:

if \_\_\_\_\_, then \_\_\_\_\_.

(b)  $\lim_{x \rightarrow 2^-} \frac{1}{x - 2} = \infty$  means:

For all \_\_\_\_\_, there is some \_\_\_\_\_ such that:

if \_\_\_\_\_, then \_\_\_\_\_.