Name: _____

Directions: Closed book, closed notes, no calculators.   Each problem is 10 points, for a total of 20 points.

By submitting this quiz you affirm that you agree with this statement: *On my honor, I have neither given nor received unauthorized aid on this assignment, and I pledge that I am in compliance with the VCU Honor System.*

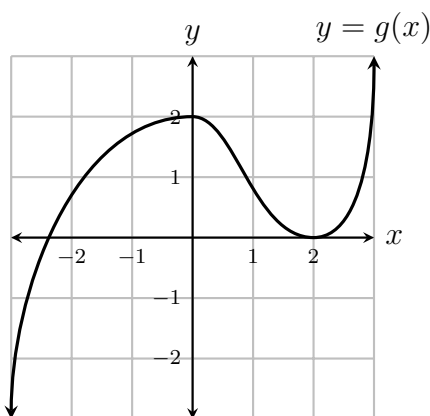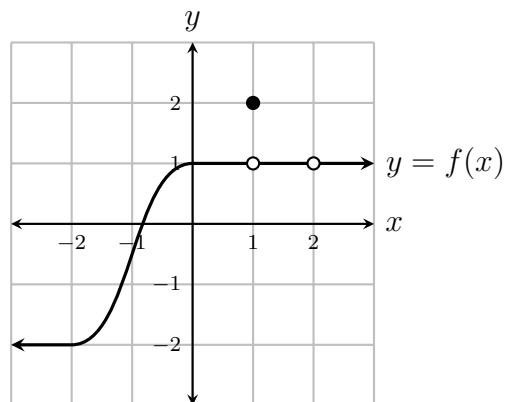1. Answer the following questions involving the two functions graphed below.

    (a) At which x (if any) is $f(x)$ discontinuous?

    (b) $\displaystyle\lim_{x \to 2} f\big(g(x)\big) =$

    (c) $\displaystyle\lim_{x \to 2} f(x)g(x) =$

    (d) $\displaystyle\lim_{x \to 0} \sin\left(\frac{3\pi f(x)}{g(x)}\right) =$

    (e) $\displaystyle\lim_{x \to -1} \frac{\sin\big(f(x)\big)}{f(x)} =$

$y = f(x)$

$y = g(x)$

2. Sketch the graph of **one** function f that meets **all** of the following criteria.

    (a) The domain of f is the interval $[-5, 5]$.

    (b) f is continuous at all x in $[-5, 5]$ **except** at $x = 1$ and $x = 3$.

    (c) $\displaystyle\lim_{x \to 1} f(x) = 2$

    (d) $\displaystyle\lim_{x \to 3^-} f(x) = -2$

    (e) $\displaystyle\lim_{x \to 3^+} f(x) = 1$