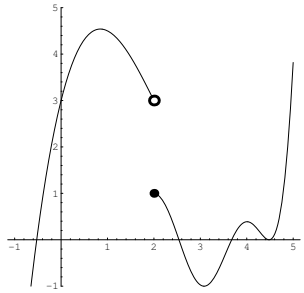
Math 203 Fall 2018 Professor MG
Classwork 2 Name: _____

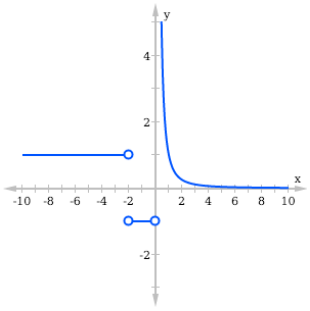
Show all work and circle/box your final answer. All answers must be simplified unless stated otherwise.

1. (*0 points*) On what interval(s) are the following functions continuous? Find the limits from the left and right of any point of discontinuity.

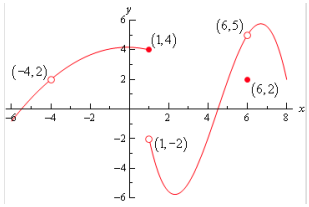
(a)



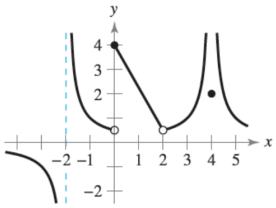
(b)



(c)



(d)



2. (*0 points*)

(a) Graph the given function

(b) Find all values of x where the function is discontinuous

(c) Find the limit from the left and from the right at any values of x found in (b).

$$f(x) = \begin{cases} x - 1 & x < 1 \\ 0 & 1 \le x \le 4 \\ x - 2 & x > 4 \end{cases}$$

3. (*0 points*)

(a) Graph the given function

(b) Find all values of x where the function is discontinuous

(c) Find the limit from the left and from the right at any values of x found in (b).

$$g(x) = \begin{cases} 0 & x < 0 \\ x^2 - 5x & 0 \le x \le 5 \\ 5 & x > 5 \end{cases}$$

4. (*0 points*) Determine if $f(x) = \begin{cases} 8x - 3 & x \le 1 \\ 4x^2 + 5 & x > 1 \end{cases}$ is continuous at $x = 1$.

5. (*0 points*) Is the following function continuous at $x = 0$?

$$f(x) = \begin{cases} \dfrac{x-6}{x-3} & x < 0 \\ 2 & x = 0 \\ \sqrt{4 + x^2} & x > 0 \end{cases}$$

6. (*0 points*) Find the value of the constant k that makes the function continuous

$$g(x) = \begin{cases} x^3 + k & x \le 3 \\ kx - 5 & x > 3 \end{cases}$$

7. (*0 points*) What values of m and b make the following function continuous:

$$f(x) = \begin{cases} x^2 - 7 & x < -2 \\ mx + b & -2 \le x \le 2 \\ 5 & x > 2 \end{cases}$$