

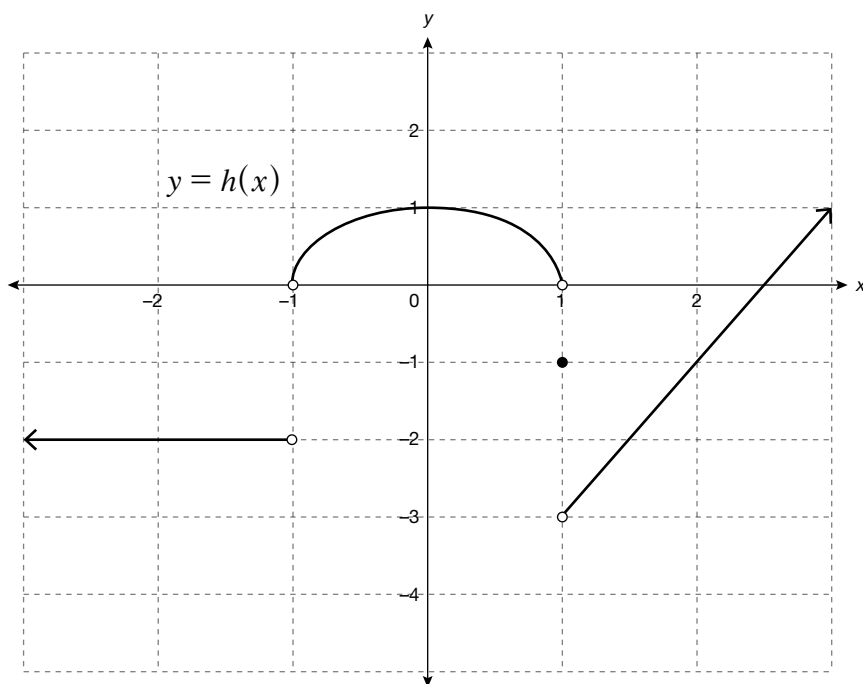


Practice – 2

Once you feel confident with discontinuity, complete problems 1 to 4. Check your answers by going to the Solutions tab in Moodle.

Instructions: Answer each of the following practice questions on a separate piece of paper. Step by step solutions are provided under the Solutions tab. You will learn the material more thoroughly if you complete the questions before checking the answers.

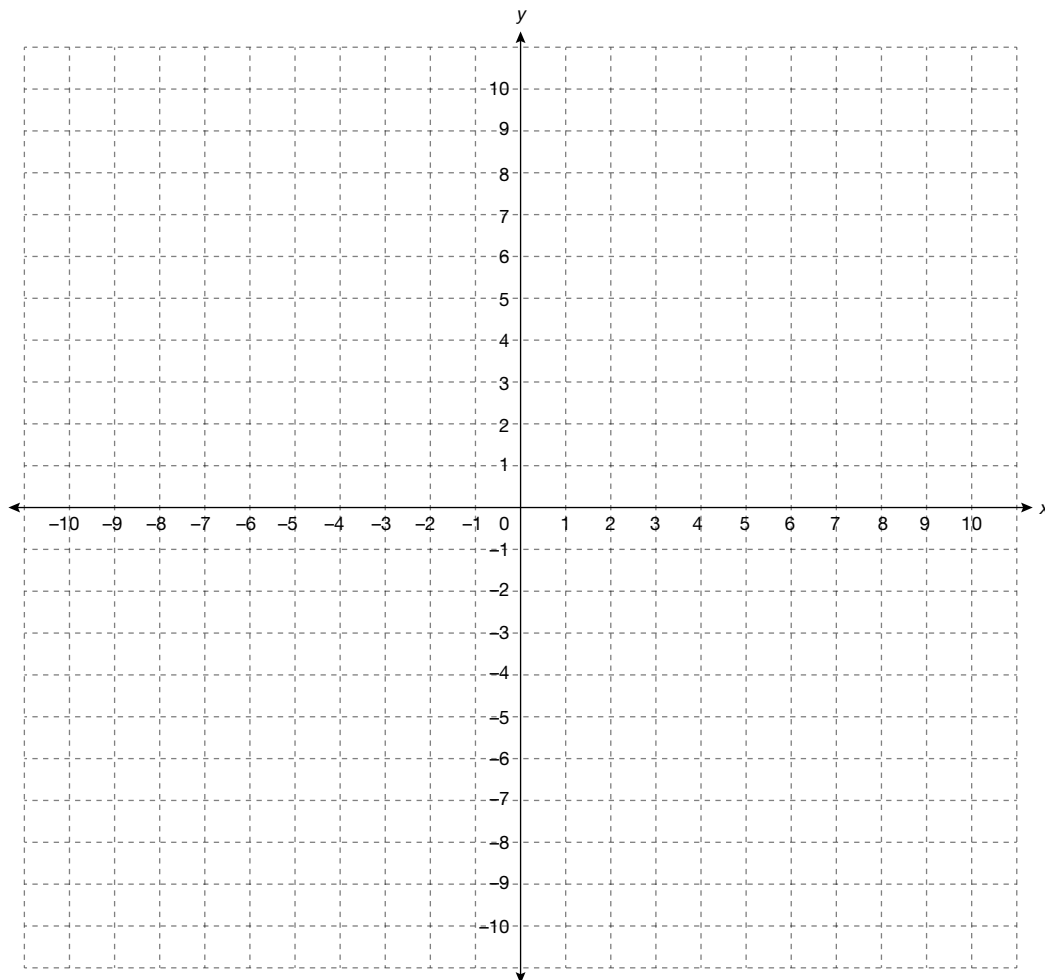
1. Discuss all the points of discontinuity in $y = h(x)$ as shown in the graph below.



2. A piecewise function is defined as follows.

$$f(x) = \begin{cases} -\frac{1}{2}x - 2, & x \leq -2 \\ -x^2 + 3, & -2 < x < 2 \\ 2x - 8, & x \geq 2 \end{cases}$$

- a. Sketch the graph of the function $y = f(x)$.



- b. Determine where the function is discontinuous.

3. A piecewise function is defined as follows.

$$f(x) = \begin{cases} (x+1)^2, & x < -1 \\ x, & -1 \leq x \leq 1 \\ 2x - x^2, & x > 1 \end{cases}$$

Without graphing the function, determine if the function is continuous or discontinuous.

4. Find the value(s) of a such that $h(x) = \begin{cases} 4x - 3, & x \geq -3 \\ ax^2 + 3x, & x < -3 \end{cases}$ is continuous at $x = -3$.