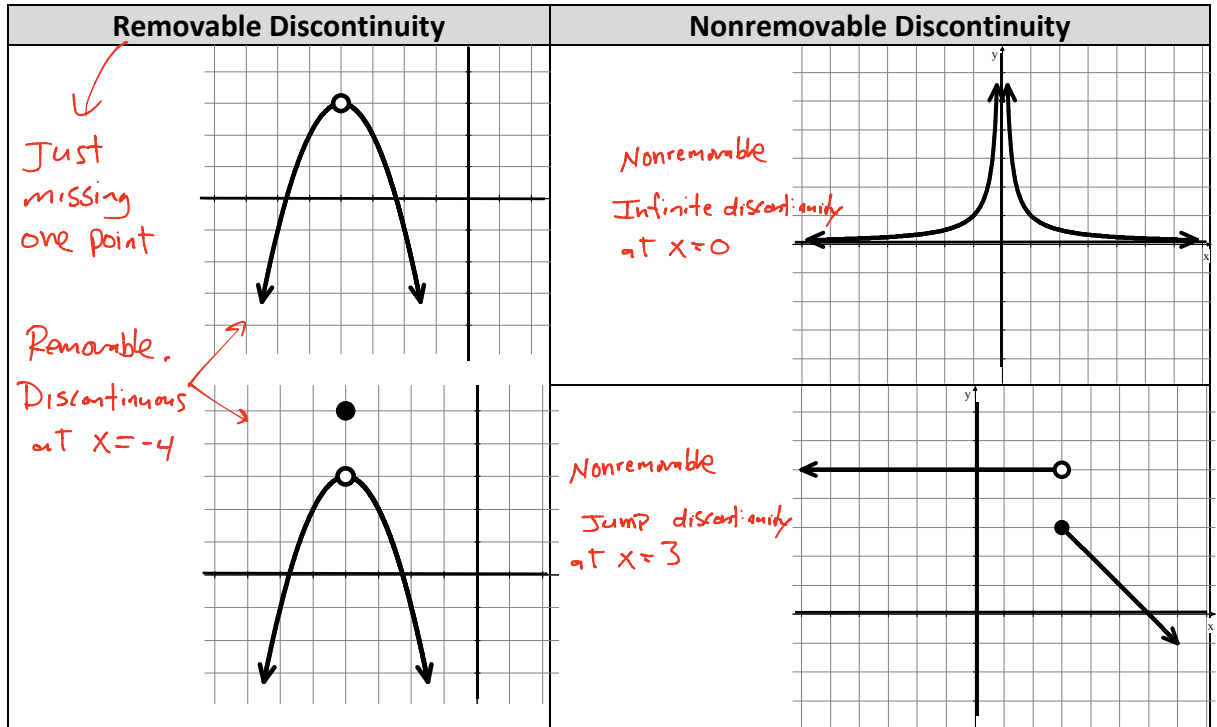


Write your questions and thoughts here!

## Continuous Functions and Discontinuities

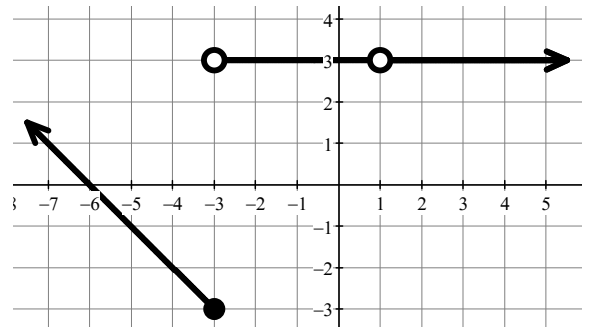
A **continuous function** is a function that no breaks or gaps in its graph.  
You can draw it without lifting up your pencil.

### Classifying Discontinuities



1) Using the graph at the right, identify the  $x$ -values of each discontinuity, and write if it is removable or not. If it is nonremovable then classify what type.

Nonremovable. Jump discontinuity at  $x=3$   
 Removable discontinuity at  $x=1$



## Limits

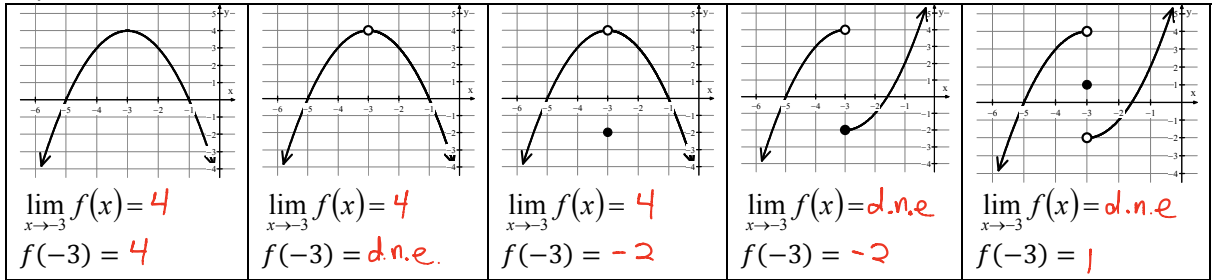
A **one-sided limit** is the  $y$ -value that a function approaches from either the left or the right side of a given  $x$ -value.

A **limit** is the  $y$ -value that a function approaches at a given  $x$ -value if the left-sided limit is equal to the right-sided limit.

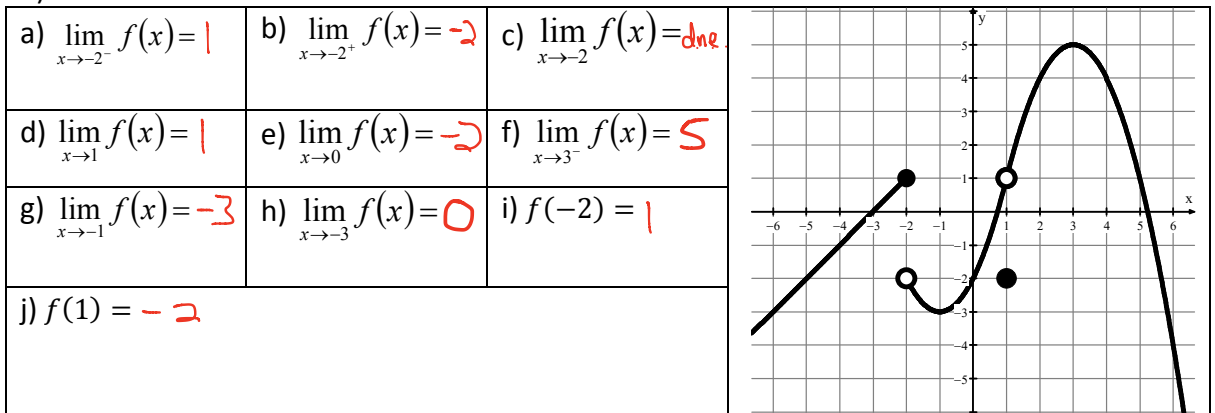
## 2.3 Limits Graphically

Write your questions and thoughts here!

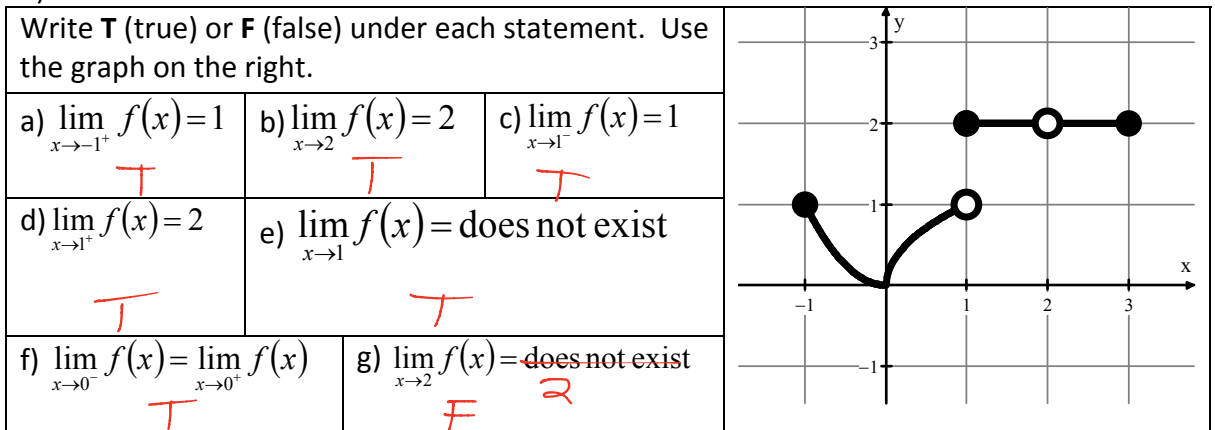
2)



3)



4)



### Continuous Function – formal definition

For  $f(x)$  to be continuous, the following three conditions must be met:

- $f(c)$  is defined. (Translation:  $c$  is in the domain)
- $\lim_{x \rightarrow c} f(x)$  exists
- $\lim_{x \rightarrow c} f(x) = f(c)$

Now summarize what you learned!

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