

## Worksheet #1: Limit Notation

**Definition:** Limits of functions ask “where does it look like the y-value of the function should be going”?

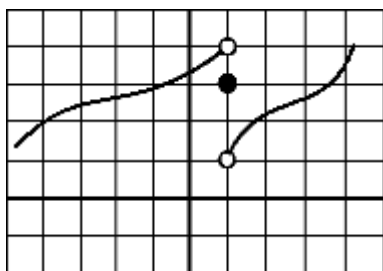
$\lim_{x \rightarrow c^+} f(x)$  is the limit as  $x$  approaches  $c$  from the *RIGHT*

$\lim_{x \rightarrow c^-} f(x)$  is the limit as  $x$  approaches  $c$  from the *LEFT*

$\lim_{x \rightarrow c} f(x)$  without a  $+/-$  symbol specified, is a *TWO SIDED*. These limits exist only when both the *LEFT* and *RIGHT* sided limits yield the same number. Otherwise, the limit Does Not Exist (DNE).

Find the values of the following

1.



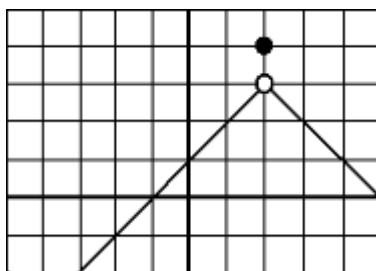
$$\lim_{x \rightarrow 1^+} f(x) =$$

$$\lim_{x \rightarrow 1^-} f(x) =$$

$$\lim_{x \rightarrow 1} f(x) =$$

$$f(1) =$$

2.



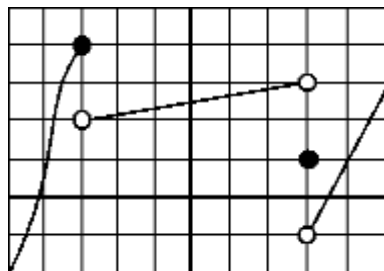
$$\lim_{x \rightarrow 2^+} f(x) =$$

$$\lim_{x \rightarrow 2^-} f(x) =$$

$$\lim_{x \rightarrow 2} f(x) =$$

$$f(2) =$$

3.



$$\lim_{x \rightarrow -3^+} f(x) =$$

$$\lim_{x \rightarrow -3^-} f(x) =$$

$$\lim_{x \rightarrow -3} f(x) =$$

$$f(-3) =$$

$$\lim_{x \rightarrow 3^+} f(x) =$$

$$\lim_{x \rightarrow 3^-} f(x) =$$

$$\lim_{x \rightarrow 3} f(x) =$$

$$f(3) =$$