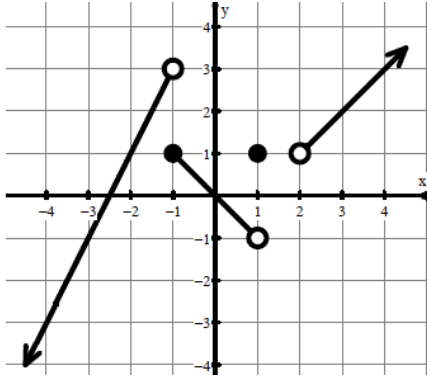


**Homework 1.7 Part I**

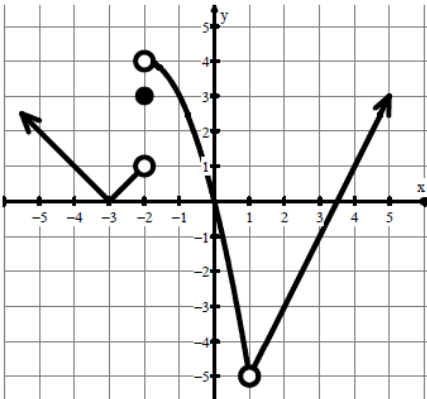
For 1-5 give the value of each statement. If the value does not exist, write "does not exist" or "undefined."

1. Graph of  $f(x)$



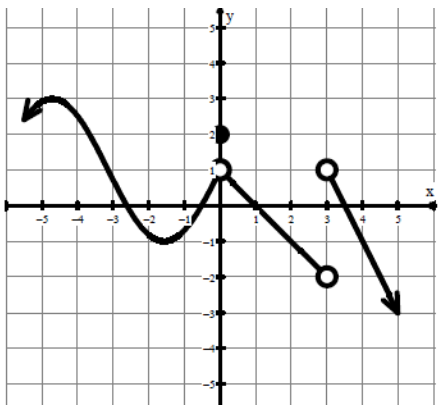
- a.  $\lim_{x \rightarrow -1^-} f(x) = 3$      $\lim_{x \rightarrow -1^+} f(x) = 1$      $\lim_{x \rightarrow -1} f(x) \neq \text{DNE}$      $f(-1) = 1$
- 
- b.  $\lim_{x \rightarrow 0^-} f(x) = 0$      $\lim_{x \rightarrow 0^+} f(x) = 0$      $\lim_{x \rightarrow 0} f(x) = 0$      $f(0) = 0$
- 
- c.  $\lim_{x \rightarrow 1^-} f(x) = -1$      $\lim_{x \rightarrow 1^+} f(x) \neq \text{DNE}$      $\lim_{x \rightarrow 1} f(x) = -1$      $f(1) = 1$
- 
- d.  $\lim_{x \rightarrow 2^-} f(x) \neq \text{DNE}$      $\lim_{x \rightarrow 2^+} f(x) = 1$      $\lim_{x \rightarrow 2} f(x) = 1$      $f(2) \neq \text{undefined}$

2. Graph of  $g(x)$

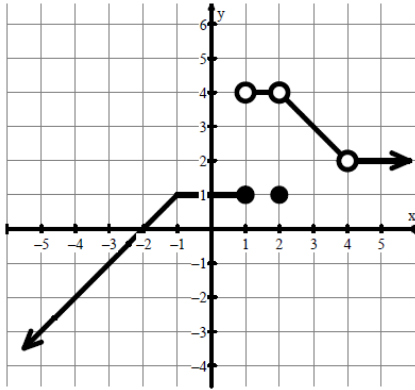


- a.  $\lim_{x \rightarrow -2^-} g(x) = 1$      $\lim_{x \rightarrow -2^+} g(x) = 4$      $\lim_{x \rightarrow -2} g(x) \neq \text{DNE}$      $g(-2) = 3$
- 
- b.  $\lim_{x \rightarrow -1^-} g(x) = 3$      $\lim_{x \rightarrow -1^+} g(x) = 3$      $\lim_{x \rightarrow -1} g(x) = 3$      $g(-1) = 3$
- 
- c.  $\lim_{x \rightarrow 1^-} g(x) = -5$      $\lim_{x \rightarrow 1^+} g(x) = -5$      $\lim_{x \rightarrow 1} g(x) = -5$      $g(1)$  is undefined
- 
- d.  $\lim_{x \rightarrow 3^-} g(x) = -1$      $\lim_{x \rightarrow 3^+} g(x) = -1$      $\lim_{x \rightarrow 3} g(x) = -1$      $g(3) = -1$

3. Graph of  $h(x)$



- a.  $\lim_{x \rightarrow 0^-} h(x) = 1$      $\lim_{x \rightarrow 0^+} h(x) = 1$      $\lim_{x \rightarrow 0} h(x) = 1$      $h(0) = 2$
- 
- c.  $\lim_{x \rightarrow -1.5} h(x) \approx -1$      $h(-1.5) \approx -1$
- 
- d.  $\lim_{x \rightarrow 3^-} h(x) = -2$      $\lim_{x \rightarrow 3^+} h(x) = 1$      $\lim_{x \rightarrow 3} h(x) \neq \text{DNE}$      $h(3)$  is undefined

4. Graph of  $k(x)$ 

a.

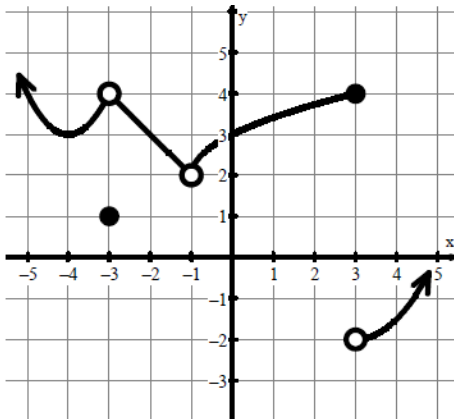
$$\lim_{x \rightarrow 1^-} k(x) = 1 \quad \lim_{x \rightarrow 1^+} k(x) = 4 \quad \lim_{x \rightarrow 1} k(x) \text{ \textit{is} DNE} \quad k(1) = 1$$

b.

$$\lim_{x \rightarrow 2^-} k(x) = 4 \quad \lim_{x \rightarrow 2^+} k(x) = 4 \quad \lim_{x \rightarrow 2} k(x) = 4 \quad k(2) = 1$$

c.

$$\lim_{x \rightarrow 4^-} k(x) = 2 \quad \lim_{x \rightarrow 4^+} k(x) = 2 \quad \lim_{x \rightarrow 4} k(x) = 2 \quad k(4) \text{ \textit{is} undefined}$$

5. Graph of  $j(x)$ 

$$\text{a. } \lim_{x \rightarrow -3} j(x) = 4 \quad j(-3) = 1$$

$$\text{b. } \lim_{x \rightarrow -1} j(x) = 2 \quad j(-1) \text{ \textit{is} undefined}$$

$$\text{c. } \lim_{x \rightarrow 0} j(x) = 3 \quad j(0) = 3$$

$$\text{d. } \lim_{x \rightarrow 3} j(x) \text{ \textit{is} DNE} \quad j(3) = 4$$