

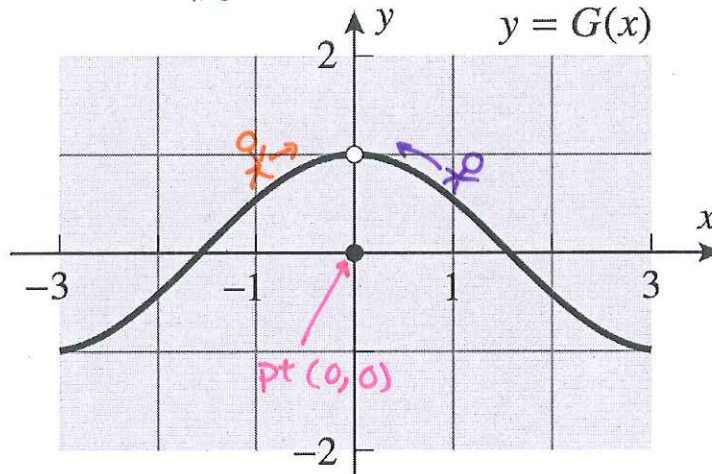
# Limits Worksheet

1. For the function  $G$  graphed in the accompanying figure, find

(a)  $\lim_{x \rightarrow 0^-} G(x) = 1$       (b)  $\lim_{x \rightarrow 0^+} G(x) = 1$

(c)  $\lim_{x \rightarrow 0} G(x) = 1$       (b)  $G(0) = 0$

b/c  $\lim_{x \rightarrow 0^-} G(x) = \lim_{x \rightarrow 0^+} G(x) = 1$

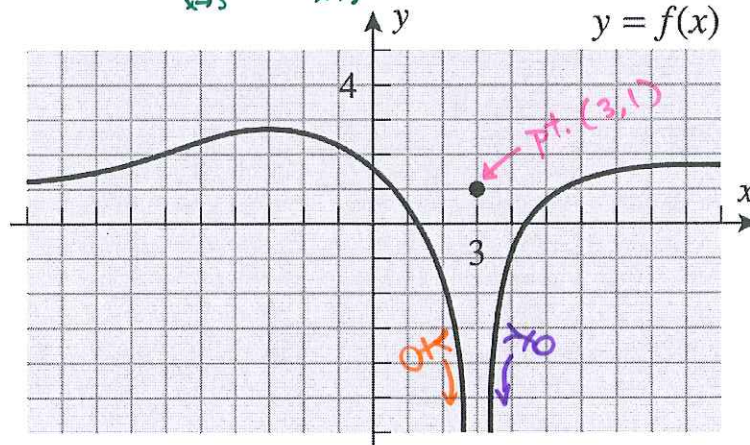


2. For the function  $f$  graphed in the accompanying figure, find

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

(c)  $\lim_{x \rightarrow 3} f(x) = -\infty$       (b)  $f(3) = 1$

b/c  $\lim_{x \rightarrow 3^-} f(x) = \lim_{x \rightarrow 3^+} f(x) = -\infty$

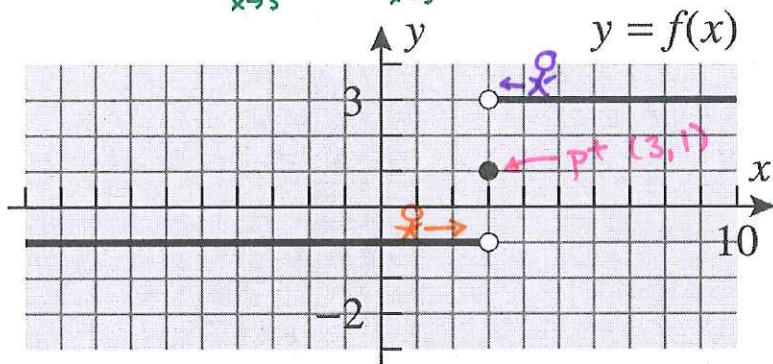


3. For the function  $f$  graphed in the accompanying figure, find

(a)  $\lim_{x \rightarrow 3^-} f(x) = -1$       (b)  $\lim_{x \rightarrow 3^+} f(x) = 3$

(c)  $\lim_{x \rightarrow 3} f(x) = \text{DNE}$       (b)  $f(3) = 1$

b/c  $\lim_{x \rightarrow 3^-} f(x) \neq \lim_{x \rightarrow 3^+} f(x)$



4. For the function  $f$  graphed in the accompanying figure, find

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

(b)  $\lim_{x \rightarrow 2^+} f(x) = 0$

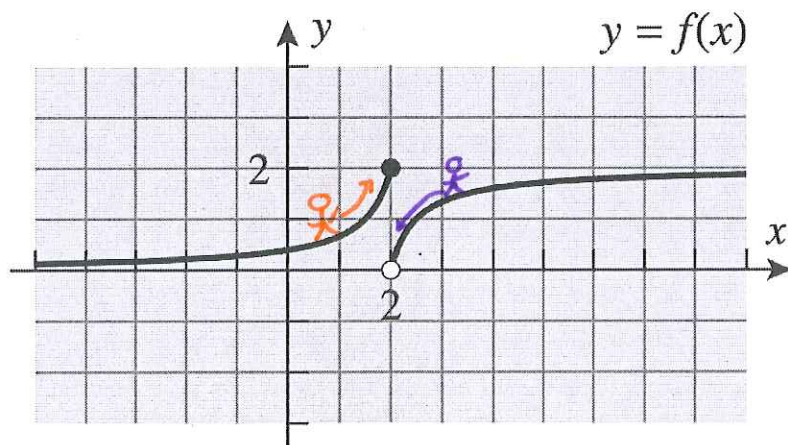
(c)  $\lim_{x \rightarrow 2} f(x) = \text{DNE}$

b/c  $\lim_{x \rightarrow 2^-} f(x) \neq \lim_{x \rightarrow 2^+} f(x)$

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

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

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

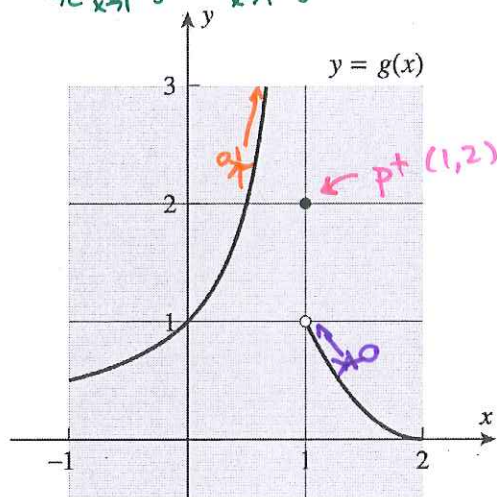


5. For the function  $g$  graphed in the accompanying figure, find

(a)  $\lim_{x \rightarrow 1^-} g(x) = \infty$       (b)  $\lim_{x \rightarrow 1^+} g(x) = 1$

(c)  $\lim_{x \rightarrow 1} g(x) = \text{DNE}$       (b)  $g(1) = 2$

$\because \lim_{x \rightarrow 1^-} g(x) \neq \lim_{x \rightarrow 1^+} g(x)$

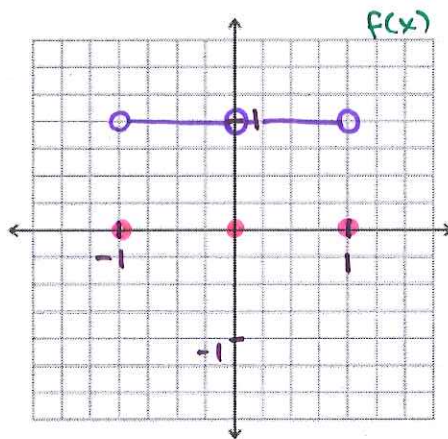


6. On the axes provided below, sketch a possible graph for a function  $f$  with the specified properties.

i. the domain is  $[-1, 1]$

ii.  $f(-1) = f(0) = f(1) = 0 \rightarrow$  pts.  $(-1, 0)$ ,  $(1, 0)$  and  $(0, 0)$

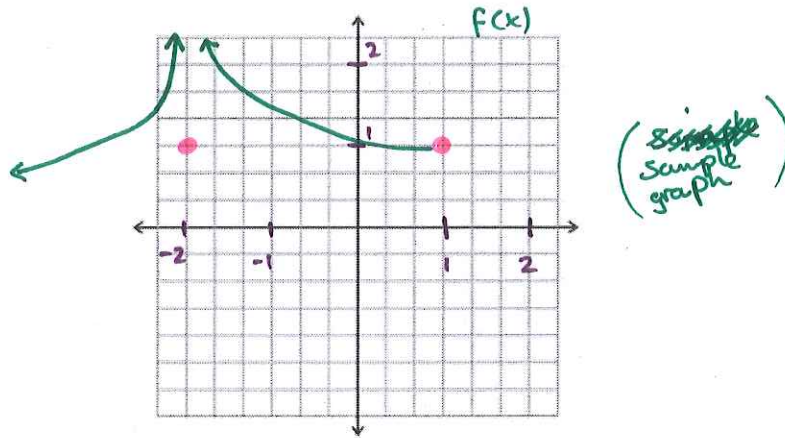
iii.  $\lim_{x \rightarrow -1^+} f(x) = \lim_{x \rightarrow 0^-} f(x) = \lim_{x \rightarrow 1^-} f(x) = 1$



(Sample answer)

7. On the axes provided below, sketch a possible graph for a function  $f$  with the specified properties.

- i. the domain is  $[-\infty, 1]$
- ii.  $f(-2) = f(1) = 1$  pts  $(-2, 1)$  and  $(1, 1)$
- iii.  $\lim_{x \rightarrow -2} f(x) = +\infty$



8. On the axes provided below, sketch a possible graph for a function  $f$  with the specified properties.

- i. the domain is  $[-2, 1]$
- ii.  $f(-2) = f(0) = f(1) = 0$  pts  $(-2, 0)$   $(0, 0)$   $(1, 0)$
- iii.  $\lim_{x \rightarrow -2^+} f(x) = 2$ ,  $\lim_{x \rightarrow 0} f(x) = 0$ ,  $\lim_{x \rightarrow 1^-} f(x) = 1$

