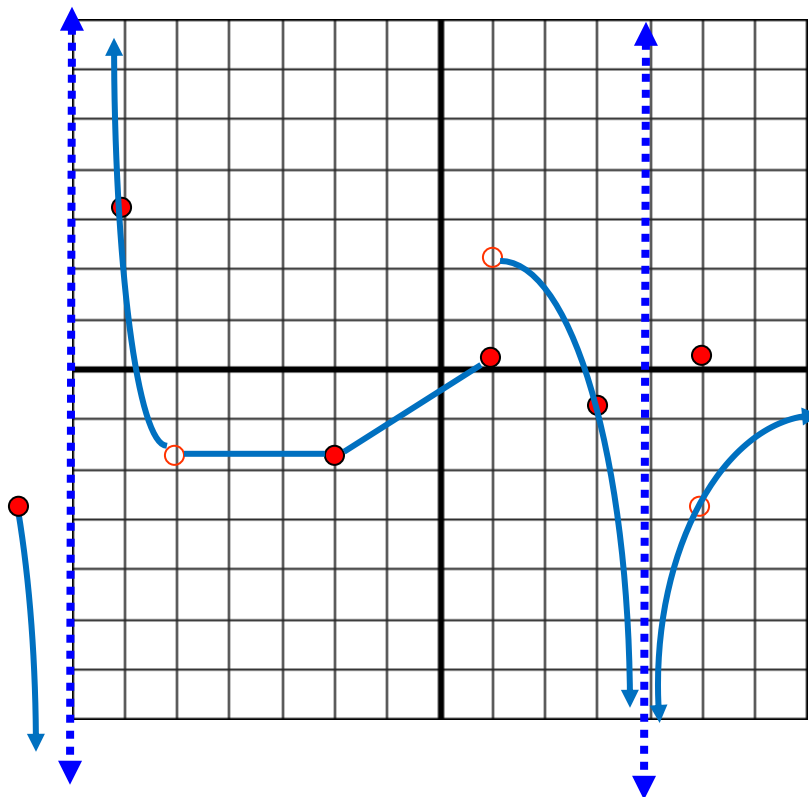


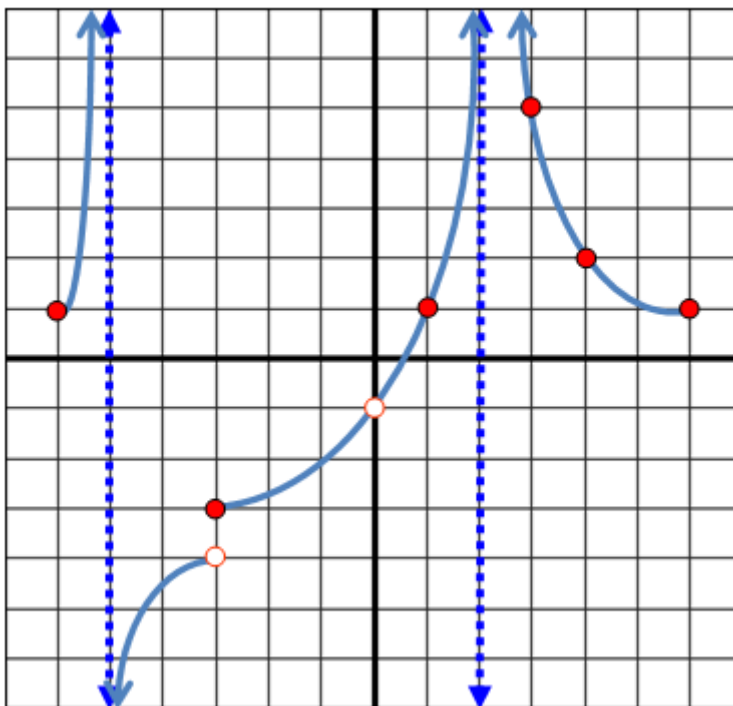
### INTRODUCTION TO LIMITS

Directions: The graph of the function  $f(x)$  is given below. Find the following limits.



1.  $\lim_{x \rightarrow -6^-} f(x) = -\infty$      $\lim_{x \rightarrow -6^+} f(x) = \infty$      $\lim_{x \rightarrow -6} f(x) = \text{DNE}$      $f(-6) = \text{undefined}$
2.  $\lim_{x \rightarrow -4^-} f(x) = -1$      $\lim_{x \rightarrow -4^+} f(x) = 1$      $\lim_{x \rightarrow -4} f(x) = \text{DNE}$      $f(-4) = \text{undefined}$
3.  $\lim_{x \rightarrow -1^-} f(x) = -1$      $\lim_{x \rightarrow -1^+} f(x) = 1$      $\lim_{x \rightarrow -1} f(x) = -1$      $f(-1) = 1$
4.  $\lim_{x \rightarrow 2^-} f(x) = 3$      $\lim_{x \rightarrow 2^+} f(x) = -1$      $\lim_{x \rightarrow 2} f(x) = \text{DNE}$      $f(2) = -1$
5.  $\lim_{x \rightarrow 5^-} f(x) = -\infty$      $\lim_{x \rightarrow 5^+} f(x) = \infty$      $\lim_{x \rightarrow 5} f(x) = \text{DNE}$      $f(5) = \text{undefined}$
6. State all values of  $x$  where the function does not have a limit:  $x = -6, 2$
7. State all values of  $x$  where the function is discontinuous:  $x = -6, -4, 2, 5, 6$

Directions: The graph of the function  $f(x)$  is given below. Find the following limits.



8.  $\lim_{x \rightarrow -5^+} f(x) = -\infty$

9.  $\lim_{x \rightarrow 4^-} f(x) = 2$

10.  $f(-5) = \text{undefined}$

11.  $\lim_{x \rightarrow -3} f(x) = \text{DNE}$

12.  $\lim_{x \rightarrow 4^+} f(x) = 2$

13.  $f(0) = \text{undefined}$

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

15.  $\lim_{x \rightarrow 0} f(x) = -1$

16.  $\lim_{x \rightarrow -3^-} f(x) = -4$

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

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

19.  $f(4) = 2$

20.  $f(2) = \text{undefined}$

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

22.  $\lim_{x \rightarrow -5} f(x) = \text{DNE}$

23.  $\lim_{x \rightarrow 0^+} f(x) = -1.5$

24.  $\lim_{x \rightarrow -5^-} f(x) = \infty$

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

26.  $f(-3) = -3$

27.  $\lim_{x \rightarrow 4} f(x) = 2$

28. Name all values of  $x$  for which the function does not have a limit:  $x = -5, -3$

29. Name all values of  $x$  for which the function is discontinuous:  $x = -5, -3, 0, 2$