The Limit of a Function 1

Problem 1: Sketch the graph of a function f with the given properties:
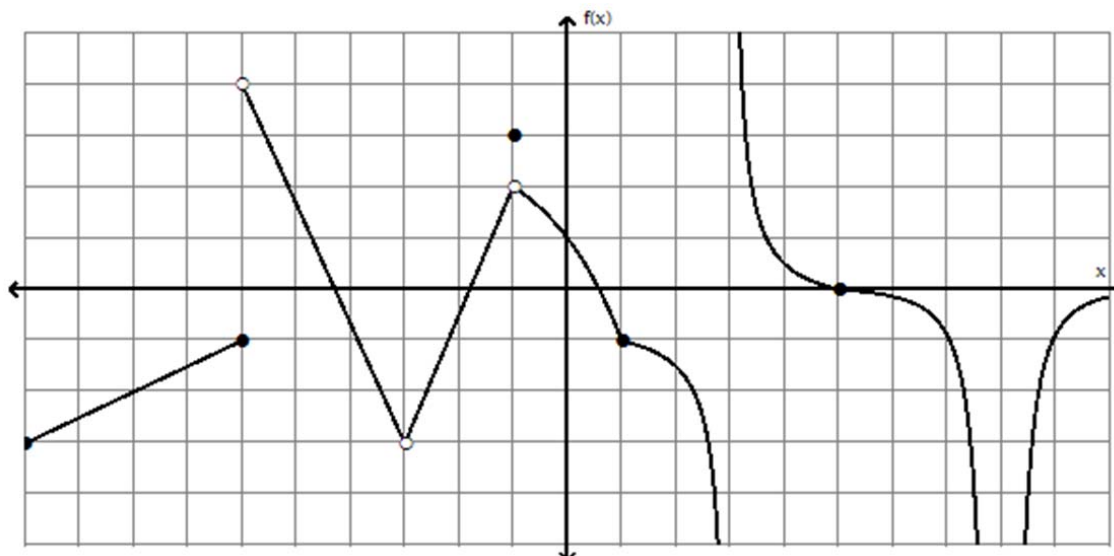
$\lim\limits_{x \to 3} f(x) = 5$, $\lim\limits_{x \to \infty} f(x) = 0$, $\lim\limits_{x \to -2} f(x) = -3$, **and** $\lim\limits_{x \to -\infty} f(x) = 0$.

Problem 2: Sketch the graph of a function f with the given properties:

$\lim\limits_{x \to -\infty} f(x) = 0$, $\lim\limits_{x \to -1^-} f(x) = -\infty$, $\lim\limits_{x \to -1^+} f(x) = \infty$, $\lim\limits_{x \to 0} f(x) = f(0)$, $f(0) = 1$, $\lim\limits_{x \to \infty} f(x) = 4$

Introduction To Limits

Name _____

Use the graph above to evaluate each limit, or if appropriate, indicate that the limit does not exist.

1. $\displaystyle\lim_{x \to -6^-} f(x)$

2. $\displaystyle\lim_{x \to -6^+} f(x)$

3. $\displaystyle\lim_{x \to -6} f(x)$

4. $\displaystyle\lim_{x \to -3^+} f(x)$

5. $\displaystyle\lim_{x \to -3} f(x)$

6. $\displaystyle\lim_{x \to -1^-} f(x)$

7. $\displaystyle\lim_{x \to -1^+} f(x)$

8. $\displaystyle\lim_{x \to -1} f(x)$

9. $\displaystyle\lim_{x \to 1} f(x)$

10. $\displaystyle\lim_{x \to 3^-} f(x)$

11. $\displaystyle\lim_{x \to 3^+} f(x)$

12. $\displaystyle\lim_{x \to 3} f(x)$

13. $\displaystyle\lim_{x \to 8^+} f(x)$

14. $\displaystyle\lim_{x \to 8} f(x)$