Complete the following definitions and illustrate each with a graph.

1. \( \lim_{x \to a} f(x) = L \) means for every \( \epsilon > 0 \) there exists \( \delta > 0 \) such that \( 0 < |x - a| < \delta \) implies \( |f(x) - L| < \epsilon \).

2. \( \lim_{x \to a^+} f(x) = L \) means for every \( \epsilon > 0 \) there exists \( \delta > 0 \) such that \( 0 < x - a < \delta \) implies .

3. \( \lim_{x \to a^-} f(x) = L \) means for every \( \epsilon > 0 \) there exists \( \delta > 0 \) such that implies .

4. \( \lim_{x \to \infty} f(x) = L \) means for every \( \epsilon > 0 \) there exists \( N \) such that \( x > N \) implies \( |f(x) - L| < \epsilon \).

5. \( \lim_{x \to -\infty} f(x) = L \) means for every there exists such that implies .

6. \( \lim_{x \to a} f(x) = \infty \) means for every there exists such that implies \( f(x) > M \).

7. \( \lim_{x \to a^+} f(x) = \infty \) means for every there exists such that implies .
8. \( \lim_{x \to a^-} f(x) = \infty \) means for every there exists such that implies .

9. \( \lim_{x \to a} f(x) = -\infty \) means for every there exists such that implies .

10. \( \lim_{x \to a^+} f(x) = -\infty \) means for every there exists such that implies .

11. \( \lim_{x \to a^-} f(x) = -\infty \) means for every there exists such that implies .

12. \( \lim_{x \to \infty} f(x) = \infty \) means for every there exists such that implies .

13. \( \lim_{x \to -\infty} f(x) = \infty \) means for every there exists such that implies .

14. \( \lim_{x \to \infty} f(x) = -\infty \) means for every there exists such that implies .

15. \( \lim_{x \to -\infty} f(x) = -\infty \) means for every there exists such that implies .