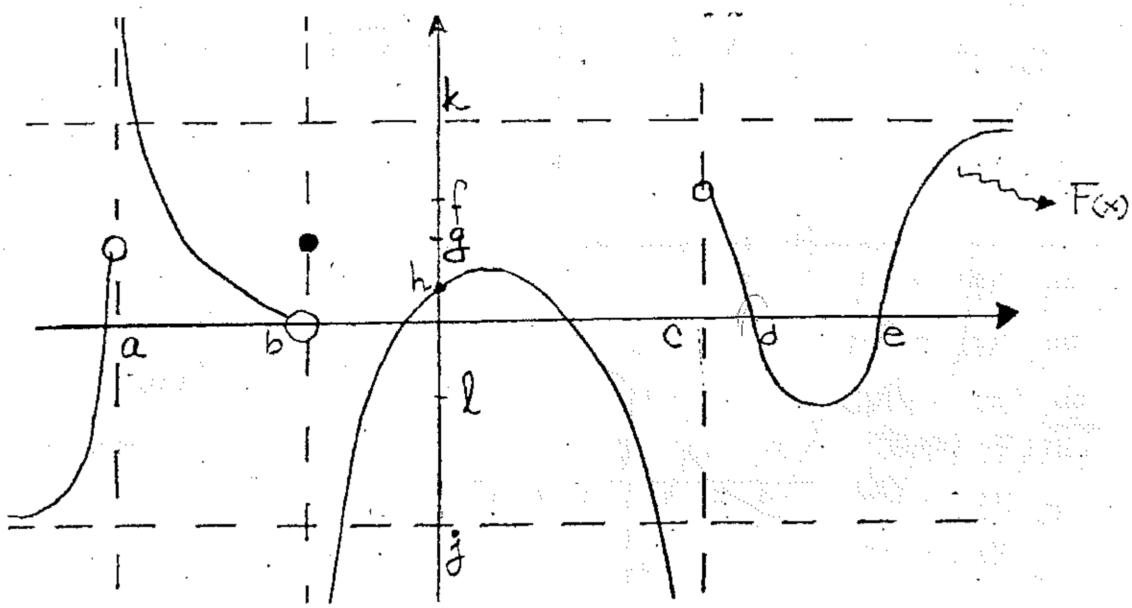
Pre-Calculus CP 1 – Visual Limits Name: KEY

Determining Limits Visually:

Your goal is to determine the y-value that the graph is trying to reach.

- If there is a hole, the limit DOES exist, and is the y-value of that hole.
- If there is a vertical asymptote, the limit may be $\pm\infty$, or may be DNE; you have to look to find out.
- If there is a jump, you must look at the one-sided limits, and again, the limit may be DNE.



1. $\lim\limits_{x\to\infty} F(x) =$ k
2. $\lim\limits_{x\to-\infty} F(x) =$ j
3. $\lim\limits_{x\to a^+} F(x) = \infty$
4. $\lim\limits_{x\to a^-} F(x) =$ g
5. $\lim\limits_{x\to a} F(x) =$ DNE
6. $\lim\limits_{x\to 0} F(x) =$ h
7. $\lim\limits_{x\to b^+} F(x) = -\infty$
8. $\lim\limits_{x\to b^-} F(x) = 0$
9. $\lim\limits_{x\to b} F(x) =$ DNE
10. $\lim\limits_{x\to c} F(x) =$ DNE
11. $\lim\limits_{x\to d} F(x) = 0$
12. $\lim\limits_{x\to e} F(x) = 0$
13. $F(e) = 0$
14. $F(0) =$ h
15. $F(b) =$ g

Pre-Calculus CP 1 – Visual Limits Homework Name: [redacted]

More examples:

For the function f graphed to the right, find

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

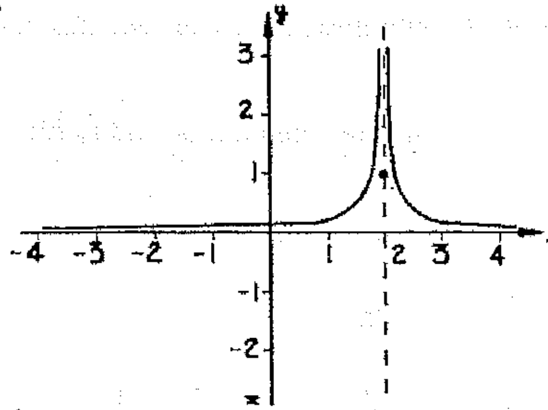
(b) $\lim_{x \to 2^+} f(x) = \infty$

(c) $\lim_{x \to 2} f(x) = \infty$

(d) $f(2) = 1$

(e) $\lim_{x \to -\infty} f(x) = 0$

(f) $\lim_{x \to +\infty} f(x). = 0$



For the function f graphed to the right, find

(a) $\lim_{x \to -1^-} f(x) = 1$

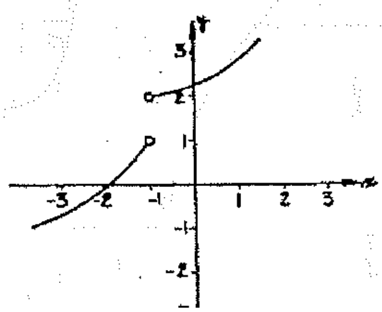
(b) $\lim_{x \to -1^+} f(x) = 2$

(c) $\lim_{x \to -1} f(x) = DNE$

(d) $f(-1) = DNE$

(e) $\lim_{x \to +\infty} f(x) = \infty$

(f) $\lim_{x \to -\infty} f(x). = -\infty$



For the function f graphed to the right, find

(a) $\lim_{x \to 2^-} f(x) = 1$

(b) $\lim_{x \to 2^+} f(x) = 1$

(c) $\lim_{x \to 2} f(x) = 1$

(d) $f(2) = 2$

(e) $\lim_{x \to 0^+} f(x) = +\infty$

(f) $\lim_{x \to +\infty} f(x). = 0$