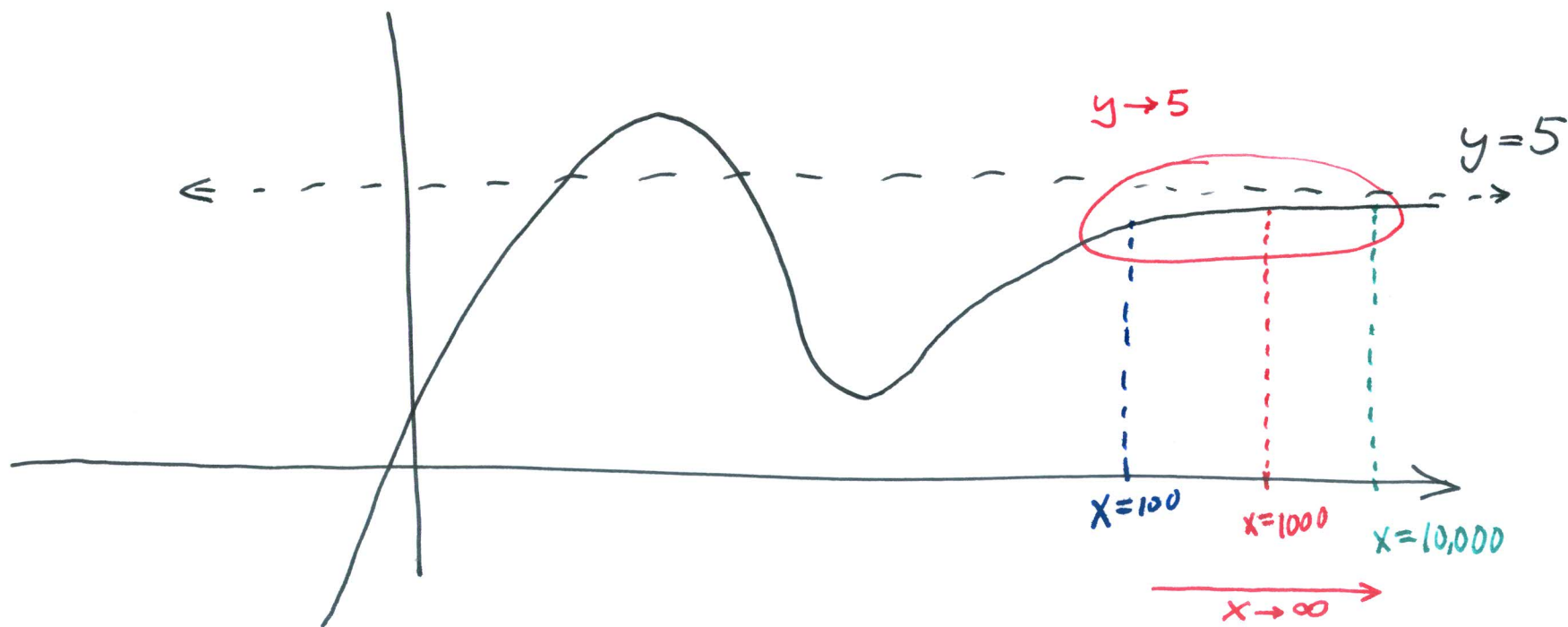


Tuesday Sept 4, 2012 (Day 4)

Continue Graphical Approach to Limits Involving Infinity

Consider Graph with horizontal asymptote



Describe in words what is happening that looks "asymptotic"

"As x gets more + more positive, without bound, the values of y get closer + closer to 5 (and may even equal 5) "

Abbreviate: As $x \rightarrow \infty$, $f(x) \rightarrow 5$.

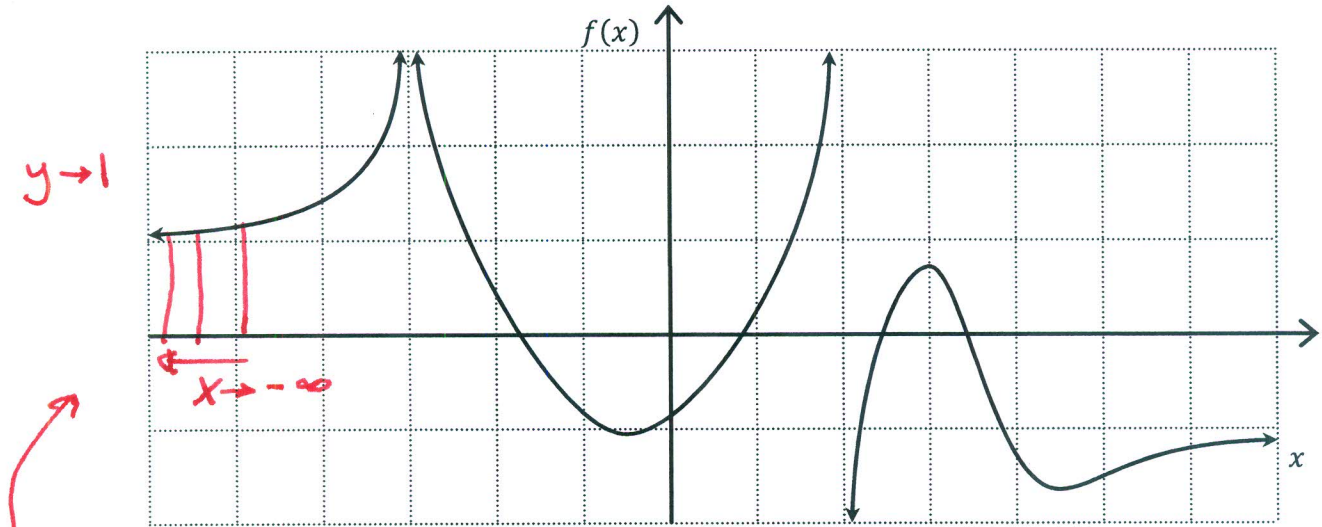
More common abbreviation: $\lim_{x \rightarrow \infty} f(x) = 5$.

"The limit, as x goes to infinity, of $f(x)$ is 5."

Work on Class Drill 2, page 16.

Class Drill 2: Limits Involving Infinity

Use the graph to fill in the table. (Extra copies of the graph are on back.)



(A) $\lim_{x \rightarrow -\infty} f(x) = 1$
Kevin

"as x gets more + more negative, without bound, the y -values get closer + closer to 1"



(B) $\lim_{x \rightarrow -3} f(x) = \infty$
Margot

"As x approaches -3 , the y -values get more + more positive without bound."



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

"as x approaches 2 from left, y goes to infinity"



(D) $\lim_{x \rightarrow 2^+} f(x) = -\infty$

as x approaches 2 from right y goes to negative infinity

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

because c + \rightarrow don't match.

(F) $\lim_{x \rightarrow \infty} f(x) = -1$

Graph has horizontal asymptote on right side at height $y = -1$

