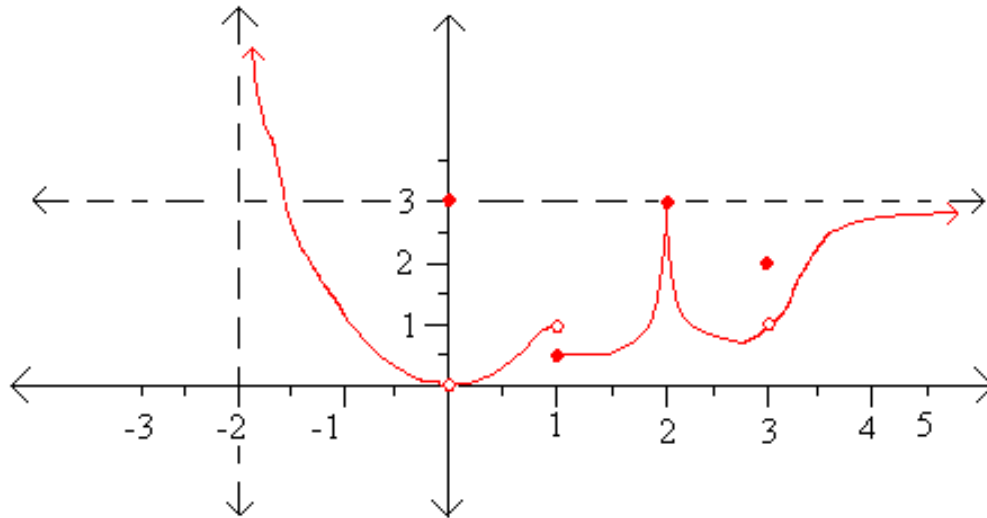


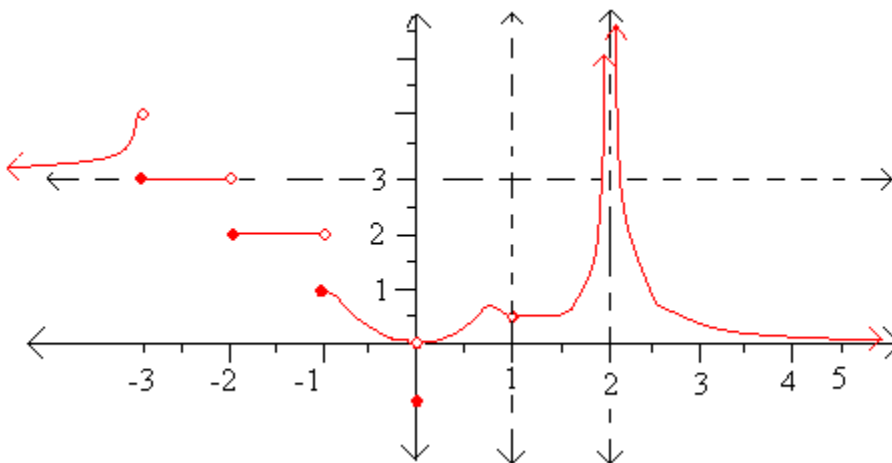
WORKSHEET III
CALCULUS I LIMITS AT A POINT
OR AS THE GRAPH GOES TO THE LEFT OR TO THE RIGHT
DR. M. P. M. M. MCLOUGHLIN

1. Consider the following function, $f(x)$, where $f: (-2, \infty) \rightarrow \mathbb{R}$. Find all the x -values where the limit of $f(x)$ does not exist and explain (or show) why the limit of $f(x)$ does not exist at those x -values. Further determine if limit as x blows up (goes on and on to the right or " ∞ ") or limit as x blows down (goes on and on to the left or " $-\infty$ ") exists or does not exist and explain (or show) why the limit of $f(x)$ does not exist for these concepts.



2.

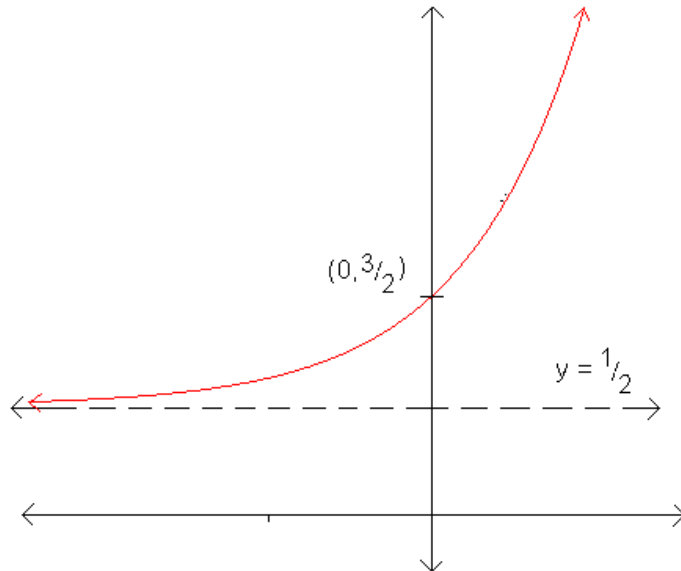
Consider the following function, $h(x)$, where $h: (-\infty, 1) \cup (1, 2) \cup (2, \infty) \rightarrow \mathbb{R}$



Find all the x -values where the limit of $h(x)$ does not exist and explain (or show) why the limit of $h(x)$ does not exist at those x -values. Further determine if limit as x blows up (goes on and on to the right or " ∞ ") or limit as x blows down (goes on and on to the left or " $-\infty$ ") exists or does not exist and explain (or show) why the limit of $h(x)$ does not exist for these concepts.

3.

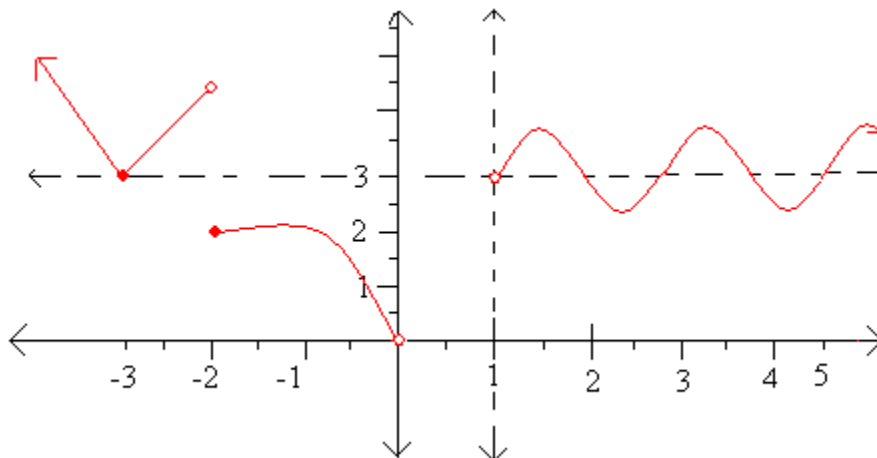
Consider the following function, $k(x)$, where where $k : (-\infty, \infty) \longrightarrow \mathbb{R}$



Find all the x - values where the limit of $k(x)$ does not exist and explain (or show) why the limit of $k(x)$ does not exist at those x - values. Further determine if limit as x blows up (goes on and on to the right or " ∞ ") or limit as x blows down (goes on and on to the left or " $-\infty$ ") exists or does not exist and explain (or show) why the limit of $k(x)$ does not exist for these concepts.

4.

Consider the following function, $g(x)$, where where $g : (-\infty, 0) \cup (1, \infty) \longrightarrow \mathbb{R}$



Find all the x - values where the limit of $g(x)$ does not exist and explain (or show) why the limit of $g(x)$ does not exist at those x - values. Further determine if limit as x blows up (goes on and on to the right or " ∞ ") or limit as x blows down (goes on and on to the left or " $-\infty$ ") exists or does not exist and explain (or show) why the limit of $g(x)$ does not exist for these concepts.