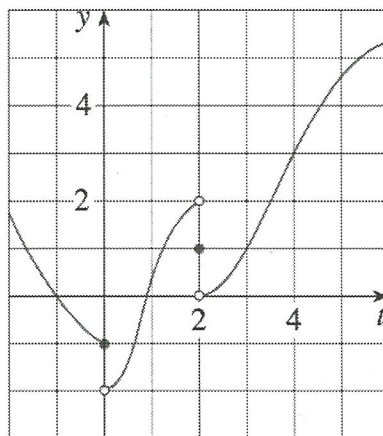


**Math 1300-005 - Spring 2017**  
Introduction to Limits, Pt. II - 1/24/17



*Guidelines:* Please work in groups of two or three. Please show all work and clearly denote your answer.

1. For the function  $f$  whose graph is given below, state the value of each quantity, if it exists. If it does not exist, *please explain why*.



(a)  $\lim_{x \rightarrow 0^-} f(x) = -1$

(b)  $\lim_{x \rightarrow 0^+} f(x) = -2$

(c)  $\lim_{x \rightarrow 0} f(x)$  DNE

since  
 $RHL \neq LHL$

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

(e)  $\lim_{x \rightarrow 2^+} f(x) = 0$

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

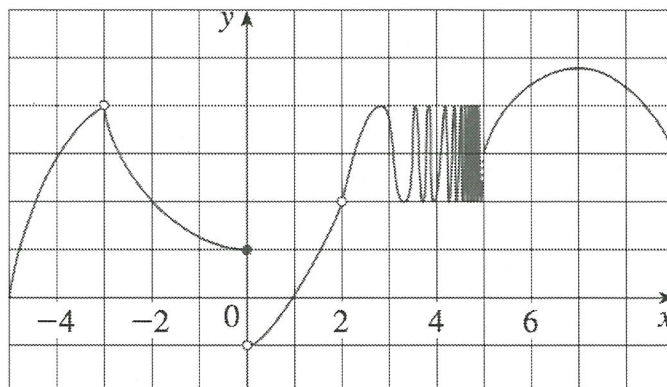
since  
 $RHL \neq LHL$

(g)  $\lim_{x \rightarrow 4} f(x) = 3$

(h)  $f(2) = 1$

since  
 $RHL = 3 = LHL$

2. For the function  $g$  whose graph is given below, state the value of each quantity, if it exists. If it does not exist, *please explain why*.



(a)  $\lim_{x \rightarrow -3^-} g(x) = 4$

(b)  $\lim_{x \rightarrow -3^+} g(x) = 4$

(c)  $\lim_{x \rightarrow -3} g(x) = 4$

SINCE

LHL = 4 = RHL

(d)  $\lim_{x \rightarrow 0^-} g(x) = 1$

(e)  $\lim_{x \rightarrow 0^+} g(x) = -1$

(f)  $\lim_{x \rightarrow 0} g(x)$  DNE

SINCE

RHL  $\neq$  LHL

(g)  $\lim_{x \rightarrow 2} g(x) = 2$

even though

$g(2)$  is not defined!

(h)  $\lim_{x \rightarrow 5^+} g(x)$  <sup>3</sup> ~~DNE~~

(i)  $\lim_{x \rightarrow 5^-} g(x)$  DNE

due to the infinite  
oscillations

(j)  $g(-3)$  not defined

(k)  $g(0) = 1$

(l)  $g(2)$  Not defined