Limits Worksheet 1 Numerical and Graphically

For questions 1 & 2, given the following find the limit numerically by completing the table.

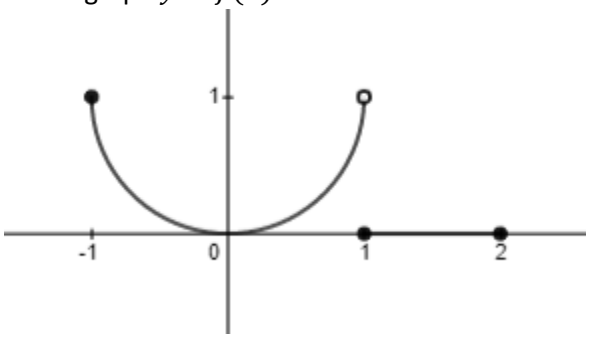
1) $\lim_{x\to -3} f(x)\ \frac{x+3}{x+3}$

x	-3.1	-3.01	->-3<-	-2.99	-2.9
f(x)					

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

x	0.99	0.999	->1<-	1.001	1.01
f(x)					

3) Given the graph $y = f(x)$ below state whether the following are true or false.

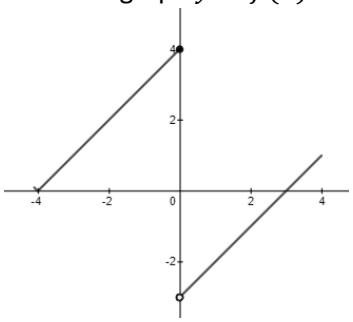


a) $\lim_{x\to -1^-} f(x)$=1 b) $\lim_{x\to 0^-} f(x)$=1 c) $\lim_{x\to 0} f(x)$ exits d) $\lim_{x\to 0} f(x)$=1

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

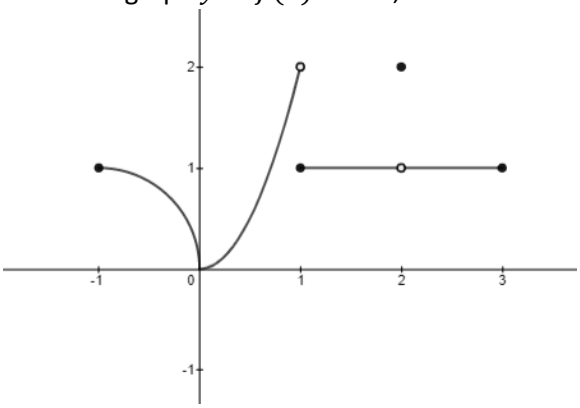
i) $\lim_{x\to 1} f(x)$=1 j) $\lim_{x\to 2^-} f(x)$=2

4) Given the graph $y = f(x)$ below, find



a) $\lim_{x\to 0^-} F(x)$ b) $\lim_{x\to 0^+} F(x)$ c) $\lim_{x\to 0} F(x)$ d) $F(0)$

5) Given the graph $y = f(x)$ below, state whether the following are true or false



a) $\lim_{x\to -1^+} f(x)$=1 b) $\lim_{x\to 2} f(x)$=does not exist c) $\lim_{x\to 2} f(x)$ =2 d) $\lim_{x\to 1^-} f(x)$=2

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

h) $\lim_{x\to c} f(x)$ exists at every c in (-1,1) i) $\lim_{x\to c} f(x)$ exists at every c in (1,3)

6) Given the graph $y = p(x)$ below find

a) $\lim_{x\to -2^-} p(x)$ b) $\lim_{x\to -2^+} p(x)$ c) $\lim_{x\to -2} p(x)$ d) $p(-2)$