Limits Worksheet 1 Numerical and Graphically KEY

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

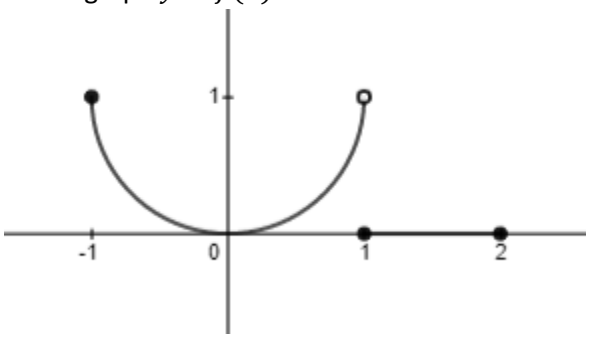
1) $\lim_{x\to -3} f(x)\ \frac{x+3}{x+3}$

x	-3.1	-3.01	->-3<-	-2.99	-2.9
f(x)	1	1	1	1	1

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

x	0.99	0.999	->1<-	1.001	1.01
f(x)	0.5025	0.5002	0.5	0.4998	4.975

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



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

b) $\lim_{x\to 0^-} f(x)$=1 FALSE

c) $\lim_{x\to 0} f(x)$ exits TRUE

d) $\lim_{x\to 0} f(x)$=1 FALSE

e) $\lim_{x\to 1} f(x) = 0$ FALSE

f) $\lim_{x\to 0^-} f(x)$=0 TRUE

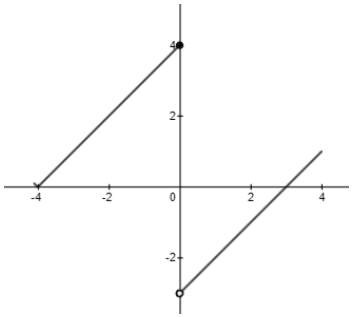
g) $\lim_{x\to 0^-} f(x) = \lim_{x\to 0^+} f(x)$ TRUE

h) $\lim_{x\to 0} f(x)$=0 TRUE

i) $\lim_{x\to 1} f(x)$=1 FALSE

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

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



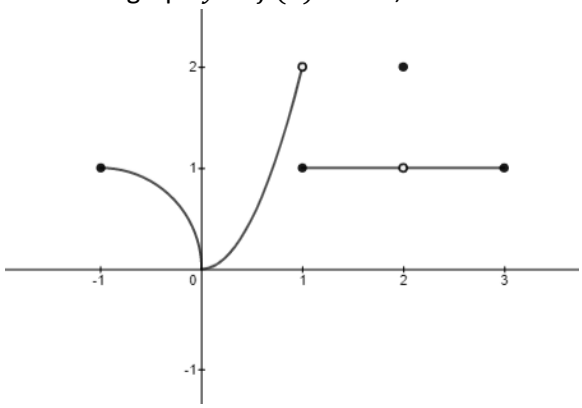
a) $\lim_{x\to 0^-} F(x)$=4

b) $\lim_{x\to 0^+} F(x)$= -3

c) $\lim_{x\to 0} F(x)$ DNE

d) $F(0)$=4

5) Given the graph $y = f(x)$ below, determine if the following are TRUE or FALSE.



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

b) $\lim_{x\to 2} f(x)$=does not exist FALSE

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

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

e) $\lim_{x\to 1^+} f(x) = 1$ TRUE

f) $\lim_{x\to 1} f(x)$ DNE TRUE

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

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

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

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

a) $\lim_{x\to -2^-} p(x)$=3

b) $\lim_{x\to -2^+} p(x)$=3

c) $\lim_{x\to -2} p(x)$=3

d) $p(-2)$=3