

NAME: SOLUTIONS

## QUIZ 2

Calculus 1 for Electrotech (201-NYA-DW 07)

Instructor: Emilie Richer

Date: January 29<sup>th</sup> 2010

[QUESTION 1] (10 marks)

Using the graph of  $f$  illustrated below, find the following 10 values. If a value does not exist write DNE.

1.  $f(-2) = \underline{2}$

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

3.  $\lim_{x \rightarrow -2^+} f(x) = \underline{\text{DNE } (\rightarrow -\infty)}$

4.  $\lim_{x \rightarrow -2} f(x) = \underline{\text{DNE}}$

5.  $f(0) = \underline{0}$

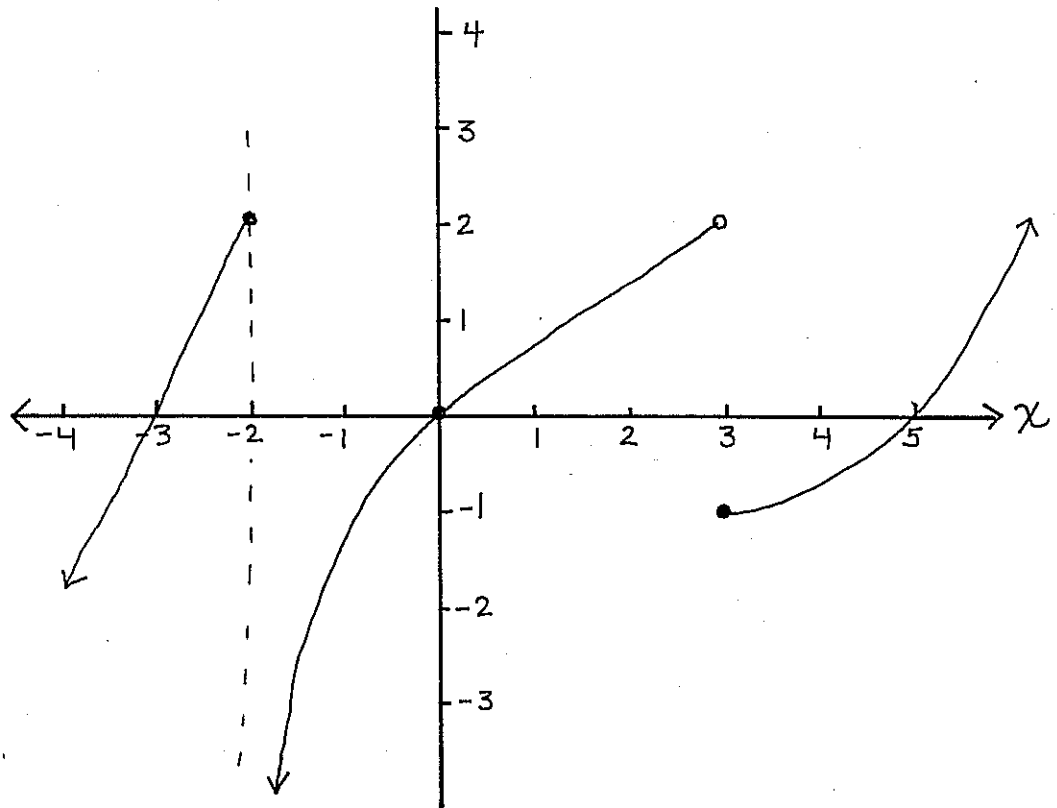
6.  $\lim_{x \rightarrow 0} f(x) = \underline{0}$

7.  $\lim_{x \rightarrow 3^-} f(x) = \underline{2}$

8.  $\lim_{x \rightarrow 3^+} f(x) = \underline{-1}$

9.  $\lim_{x \rightarrow 3} f(x) = \underline{\text{DNE}}$

10.  $f(3) = \underline{-1}$



[QUESTION 2]

Given the function  $f(x) = \frac{x+2}{x^2+x-2}$  evaluate the following limits:

(Use whichever method for evaluating limits that you deem appropriate to the situation)

$$\begin{aligned} \text{a - } \lim_{x \rightarrow -2} f(x) &= \lim_{x \rightarrow -2} \frac{x+2}{(x+2)(x-1)} \\ &= \lim_{x \rightarrow -2} \frac{1}{x-1} \\ &= \frac{1}{-2-1} = \boxed{-\frac{1}{3}} \end{aligned}$$

b -  $\lim_{x \rightarrow 1^-} f(x)$

x	0.9	0.99	0.999	0.9999
f(x)	-10	-100	-1000	-10000

$\lim_{x \rightarrow 1^-} f(x)$  DNE; tends to  $-\infty$

c -  $\lim_{x \rightarrow 1^+} f(x)$

x	1.1	1.01	1.001	1.0001
f(x)	10	100	1000	10000

$\lim_{x \rightarrow 1^+} f(x)$  DNE; tends to  $\infty$

NAME: SOLUTIONS

## QUIZ 2B

Calculus 1 for Electrotech (201-NYA-DW 07)

Instructor: Emilie Richer

Date: January 29<sup>th</sup> 2010

[QUESTION 1] (10 marks)

Using the graph of  $f$  illustrated below, find the following 10 values. If a value does not exist write DNE.

1.  $f(-2) = \underline{1}$

2.  $\lim_{x \rightarrow -2^-} f(x) = \underline{DNE (-\infty)}$

3.  $\lim_{x \rightarrow -2^+} f(x) = \underline{1}$

4.  $\lim_{x \rightarrow -2} f(x) = \underline{DNE}$

5.  $f(0) = \underline{DNE}$

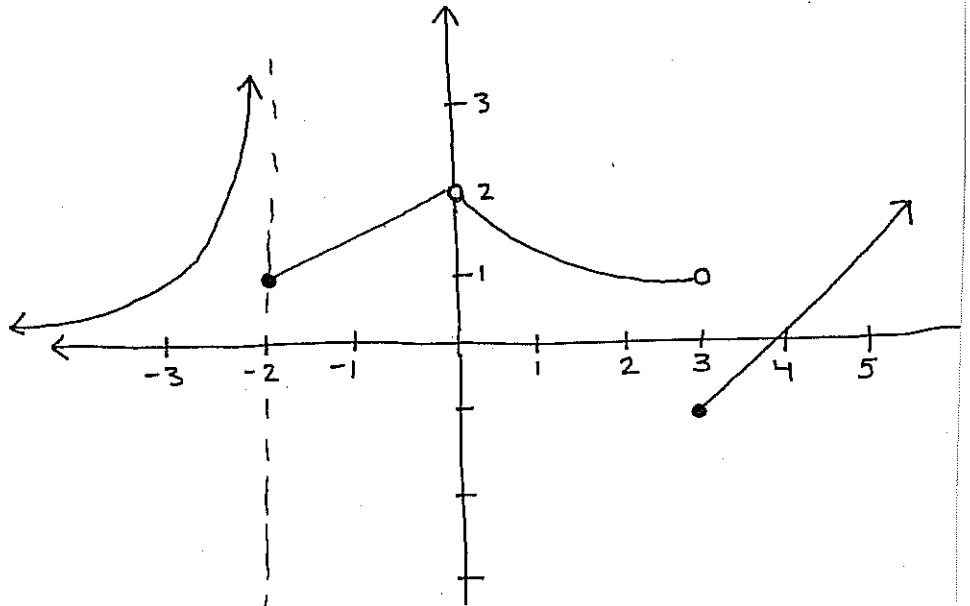
6.  $\lim_{x \rightarrow 0^+} f(x) = \underline{2}$

7.  $\lim_{x \rightarrow 3^-} f(x) = \underline{1}$

8.  $\lim_{x \rightarrow 3^+} f(x) = \underline{-1}$

9.  $\lim_{x \rightarrow 3} f(x) = \underline{DNE}$

10.  $f(3) = \underline{-1}$



[QUESTION 2]

Given the function  $f(x) = \frac{x-1}{x^2+x-2}$  evaluate the following limits:

(Use whichever method for evaluating limits that you deem appropriate to the situation)

$$\begin{aligned} \text{a - } \lim_{x \rightarrow 1} f(x) &= \lim_{x \rightarrow 1} \frac{x-1}{(x-1)(x+2)} \\ &= \lim_{x \rightarrow 1} \frac{1}{x+2} \\ &= \frac{1}{1+2} = \boxed{\frac{1}{3}} \end{aligned}$$

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

x	-2.1	-2.01	-2.001	-2.0001
f(x)	-10	-100	-1000	-10000

$\lim_{x \rightarrow -2^-} f(x)$  DNE ; tends to  $-\infty$

c -  $\lim_{x \rightarrow -2^+} f(x)$

x	-1.9	-1.99	-1.999	-1.9999
f(x)	10	100	1000	10000

$\lim_{x \rightarrow -2^+} f(x)$  DNE ; tends to  $\infty$