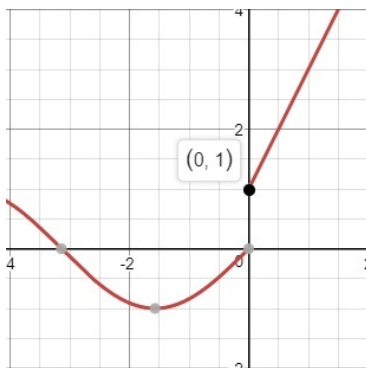


Lesson 3 Worksheet

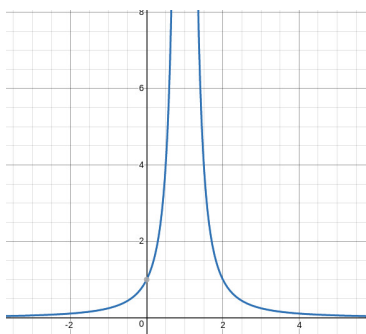
August 25, 2017

1. $f(x) = \begin{cases} \sin x & \text{if } x < 0 \\ 2x + 1 & \text{if } x \geq 0 \end{cases}$



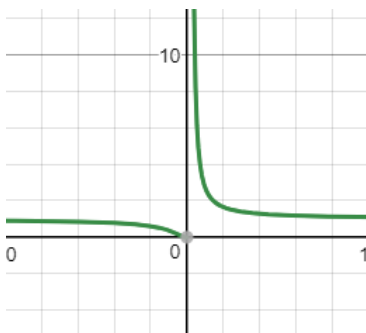
- $\lim_{x \rightarrow 0^-} f(x) =$
- $\lim_{x \rightarrow 0^+} f(x) =$
- $\lim_{x \rightarrow 0} f(x) =$
- $f(0) =$

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



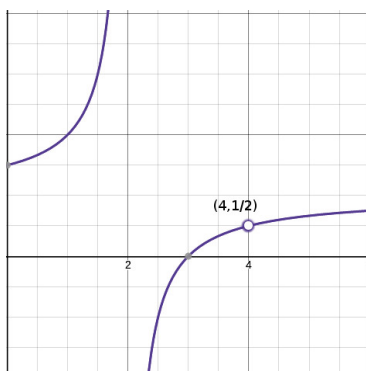
- $\lim_{x \rightarrow 1^-} f(x) =$
- $\lim_{x \rightarrow 1^+} f(x) =$
- $\lim_{x \rightarrow 1} f(x) =$
- $f(1) =$

3. $f(x) = e^{1/x}$



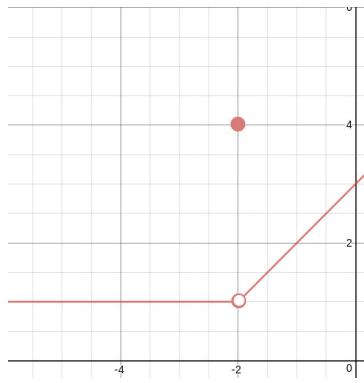
- $\lim_{x \rightarrow 0^-} f(x) =$
- $\lim_{x \rightarrow 0^+} f(x) =$
- $\lim_{x \rightarrow 0} f(x) =$
- $f(0) =$

4. $f(x) = \frac{(x-3)(x-4)}{(x-2)(x-4)}$



- $\lim_{x \rightarrow 2^-} f(x) =$
- $\lim_{x \rightarrow 2^+} f(x) =$
- $\lim_{x \rightarrow 2} f(x) =$
- $f(2) =$
- $\lim_{x \rightarrow 4^-} f(x) =$
- $\lim_{x \rightarrow 4^+} f(x) =$
- $\lim_{x \rightarrow 4} f(x) =$
- $f(4) =$

5. $f(x) = \begin{cases} 1 & \text{if } x < -2 \\ 4 & \text{if } x = -2 \\ x + 3 & \text{if } x > -2 \end{cases}$



- a. $\lim_{x \rightarrow -2^-} f(x) =$
- b. $\lim_{x \rightarrow -2^+} f(x) =$
- c. $\lim_{x \rightarrow -2} f(x) =$
- d. $f(-2) =$

6. If $\sin \theta = 4/5$ and $\cos \theta$ is negative, find:

- a. $\cos \theta =$
- b. $\tan \theta =$
- c. $\sec \theta =$
- d. $\csc \theta =$
- e. $\cot \theta =$

7. If $\tan \theta = 3/4$ and $\sin \theta$ is positive, find:

- a. $\sin \theta =$
- b. $\cos \theta =$
- c. $\sec \theta =$
- d. $\csc \theta =$
- e. $\cot \theta =$

8. If $\sec \theta = -13/5$ and $\tan \theta$ is positive, find:

- a. $\sin \theta =$
- b. $\cos \theta =$
- c. $\tan \theta =$
- d. $\csc \theta =$
- e. $\cot \theta =$

Answers:

1. a. 0
b. 1
c. DNE
d. 1
2. a. ∞
b. ∞
c. ∞
d. undefined
3. a. 0
b. ∞
c. DNE
d. undefined
4. a. ∞
b. $-\infty$
c. DNE
d. undefined
e. $1/2$
f. $1/2$
g. $1/2$
h. undefined
5. a. 1
b. 1
c. 1
d. 4
6. a. $-3/5$
b. $-4/3$
c. $-5/3$
d. $5/4$
e. $-3/4$
7. a. $3/5$
b. $4/5$
c. $5/4$
d. $5/3$
e. $4/3$
8. a. $-12/13$
b. $-5/13$
c. $12/5$
d. $-13/12$
e. $5/12$