

Due: Fri, May 31, 2019 12:00 AM MST

Question

1 2 3 4 5 6 7 8 9 10 11 12 13 14

1. Question Details

SCalc8 1.5.001. [3354117]

Explain what is meant by the equation

$$\lim_{x \rightarrow 6} f(x) = 9.$$

- ☐ The values of $f(x)$ can be made as close to 9 as we like by taking x sufficiently close to 6.
- ☐ $f(x) = 9$ for all values of x .
- ☐ If $|x_1 - 6| < |x_2 - 6|$, then $|f(x_1) - 9| \leq |f(x_2) - 9|$.
- ☐ The values of $f(x)$ can be made as close to 6 as we like by taking x sufficiently close to 9.
- ☐ If $|x_1 - 6| < |x_2 - 6|$, then $|f(x_1) - 9| < |f(x_2) - 9|$.

Is it possible for this statement to be true and yet $f(6) = 7$? Explain.

- ☐ Yes, the graph could have a hole at $(6, 9)$ and be defined such that $f(6) = 7$.
- ☐ Yes, the graph could have a vertical asymptote at $x = 6$ and be defined such that $f(6) = 7$.
- ☐ No, if $f(6) = 7$, then $\lim_{x \rightarrow 6} f(x) = 7$.
- ☐ No, if $\lim_{x \rightarrow 6} f(x) = 9$, then $f(6) = 9$.

2. Question Details

SCalc8 1.5.002. [3354190]

Explain what it means to say that

$$\lim_{x \rightarrow 3^-} f(x) = 6 \text{ and } \lim_{x \rightarrow 3^+} f(x) = 2.$$

- ☐ As x approaches 3 from the right, $f(x)$ approaches 6. As x approaches 3 from the left, $f(x)$ approaches 2.
- ☐ As x approaches 3 from the left, $f(x)$ approaches 6. As x approaches 3 from the right, $f(x)$ approaches 2.
- ☐ As x approaches 3, $f(x)$ approaches 2, but $f(3) = 6$.
- ☐ As x approaches 3, $f(x)$ approaches 6, but $f(3) = 2$.

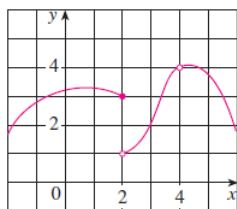
In this situation is it possible that $\lim_{x \rightarrow 3} f(x)$ exists? Explain.

- ☐ Yes, $f(x)$ could have a hole at $(3, 6)$ and be defined such that $f(3) = 2$.
- ☐ Yes, $f(x)$ could have a hole at $(3, 2)$ and be defined such that $f(3) = 6$.
- ☐ Yes, if $f(x)$ has a vertical asymptote at $x = 3$, it can be defined such that $\lim_{x \rightarrow 3^-} f(x) = 6$, $\lim_{x \rightarrow 3^+} f(x) = 2$, and $\lim_{x \rightarrow 3} f(x)$ exists.
- ☐ No, $\lim_{x \rightarrow 3} f(x)$ cannot exist if $\lim_{x \rightarrow 3^-} f(x) \neq \lim_{x \rightarrow 3^+} f(x)$.

3. Question Details

SCalc8 1.5.004. [3354294]

Use the given graph of f to state the value of each quantity, if it exists. (If an answer does not exist, enter DNE.)



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

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

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

(d) $f(2)$

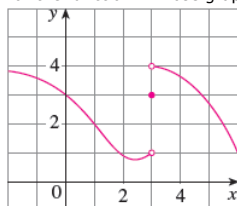
(e) $\lim_{x \rightarrow 4} f(x)$

(f) $f(4)$

4. Question Details

SCalc8 1.5.005. [3354534]

For the function f whose graph is given, state the value of each quantity, if it exists. (If an answer does not exist, enter DNE.)



(a) $\lim_{x \rightarrow 1} f(x)$

(b) $\lim_{x \rightarrow 3^-} f(x)$

(c) $\lim_{x \rightarrow 3^+} f(x)$

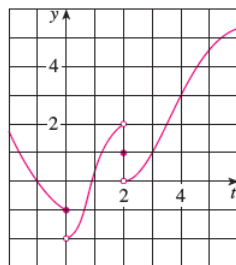
(d) $\lim_{x \rightarrow 3} f(x)$

(e) $f(3)$

5. Question Details

SCalc8 1.5.007. [3354099]

For the function g whose graph is given, state the value of each quantity, if it exists. (If an answer does not exist, enter DNE.)



(a) $\lim_{t \rightarrow 0^-} g(t)$

(b) $\lim_{t \rightarrow 0^+} g(t)$

(c) $\lim_{t \rightarrow 0} g(t)$

(d) $\lim_{t \rightarrow 2^-} g(t)$

(e) $\lim_{t \rightarrow 2^+} g(t)$

(f) $\lim_{t \rightarrow 2} g(t)$

(g) $g(2)$

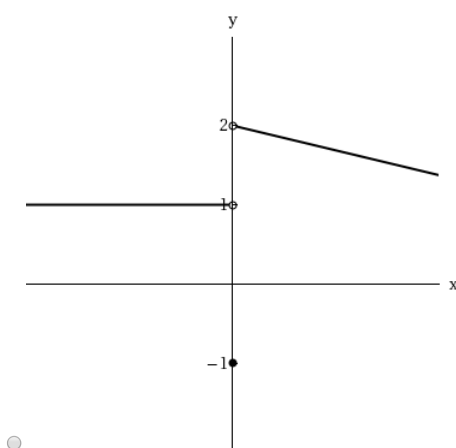
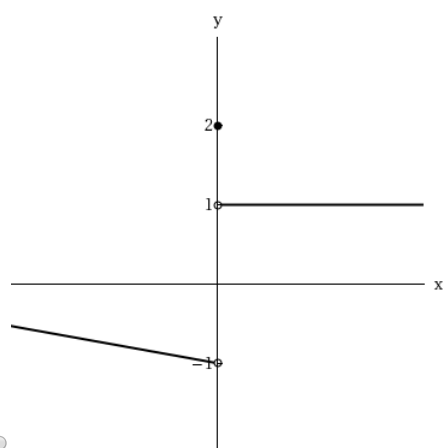
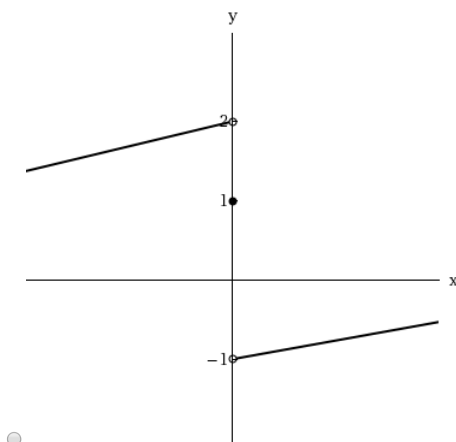
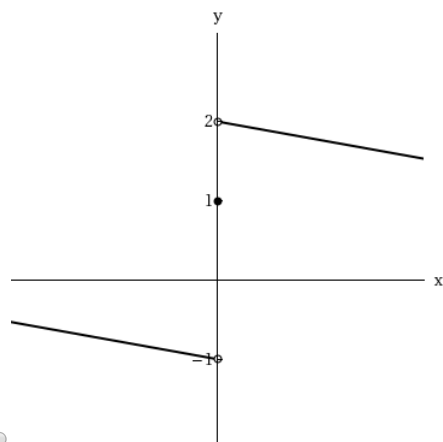
(h) $\lim_{t \rightarrow 4} g(t)$

6. Question Details

SCalc8 1.5.015. [3354148]

Sketch the graph of an example of a function f that satisfies all of the given conditions.

$$\lim_{x \rightarrow 0^-} f(x) = -1, \quad \lim_{x \rightarrow 0^+} f(x) = 1, \quad f(0) = 2$$



7. Question Details

SCalc8 1.5.019. [3354098]

Evaluate the function $f(x)$ at the given numbers (correct to six decimal places).

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

$$x = 2.1, 2.05, 2.01, 2.001, 2.0001, 1.9, 1.95, 1.99, 1.999, 1.9999$$

x	$f(x)$
2.1	<input type="text"/>
2.05	<input type="text"/>
2.01	<input type="text"/>
2.001	<input type="text"/>
2.0001	<input type="text"/>

x	$f(x)$
1.9	<input type="text"/>
1.95	<input type="text"/>
1.99	<input type="text"/>
1.999	<input type="text"/>
1.9999	<input type="text"/>

Guess the value of the limit (correct to six decimal places). (If an answer does not exist, enter DNE.)

$$\lim_{x \rightarrow 2} \frac{x^2 - 2x}{x^2 - 4}$$

8. Question Details

SCalc8 1.5.023. [3354340]

Use a table of values to estimate the value of the limit. If you have a graphing device, use it to confirm your result graphically. (Round your answer to two decimal places.)

$$\lim_{\theta \rightarrow 0} \frac{\sin(7\theta)}{\tan(4\theta)}$$

9. Question Details

SCalc8 1.5.029. [3354184]

Determine the infinite limit.

$$\lim_{x \rightarrow 8^+} \frac{x + 9}{x - 8}$$

☐ ∞
☐ $-\infty$

10. Question Details

SCalc8 1.5.041. [3354111]

Evaluate the function for values of x that approach 1 from the left and from the right.

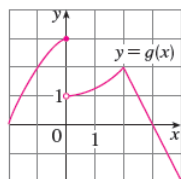
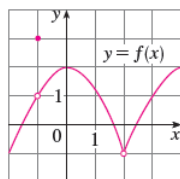
$$f(x) = \frac{4}{x^3 - 1}$$

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

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

11. Question Details

SCalc8 1.6.002. [3354359]

The graphs of f and g are given. Use them to evaluate each limit, if it exists. (If an answer does not exist, enter DNE.)

(a) $\lim_{x \rightarrow 2} [f(x) + g(x)]$

(b) $\lim_{x \rightarrow 0} [f(x) - g(x)]$

(c) $\lim_{x \rightarrow -1} [f(x)g(x)]$

(d) $\lim_{x \rightarrow 3} \frac{f(x)}{g(x)}$

(e) $\lim_{x \rightarrow 2} [x^2 f(x)]$

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

12. Question Details

SCalc8 1.6.011. [3354172]

Evaluate the limit, if it exists. (If an answer does not exist, enter DNE.)

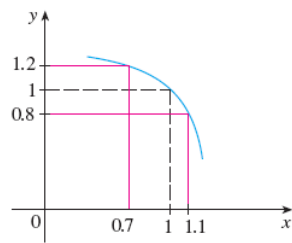
$$\lim_{x \rightarrow 3} \frac{x^2 - 8x + 15}{x - 3}$$

13. Question Details

SCalc8 1.7.001. [3354476]

Use the given graph of f to find a number δ such that

$$\text{if } |x - 1| < \delta \text{ then } |f(x) - 1| < 0.2$$

 $\delta =$ 

14. Question Details

SCalc8 1.7.011. [3354240]

A machinist is required to manufacture a circular metal disk with area 1700 cm^2 .

(a) What radius produces such a disk? (Round your answer to four decimal places.)

 cm

(b) If the machinist is allowed an error tolerance of $\pm 4 \text{ cm}^2$ in the area of the disk, how close to the ideal radius in part (a) must the machinist control the radius? (Round your answers to four decimal places.)

 cm $< r <$ cm

(c) In terms of the ε, δ definition of $\lim_{x \rightarrow a} f(x) = L$, what is x ?

- ☐ area
- ☐ target radius
- ☐ radius
- ☐ target area
- ☐ tolerance in the area

What is $f(x)$?

- ☐ area
- ☐ target radius
- ☐ radius
- ☐ target area
- ☐ tolerance in the area

What is a ?

- ☐ area
- ☐ target radius
- ☐ radius
- ☐ target area
- ☐ tolerance in the area

What is L ?

- ☐ area
- ☐ target radius
- ☐ radius
- ☐ target area
- ☐ tolerance in the area

What value of ε is given?

 cm^2

What is the corresponding value of δ ? (Round your answer to four decimal places.)

 cm

Assignment Details

Name (AID): **Limit Practice (11990038)**
 Submissions Allowed: **15**
 Category: **Homework**
 Code:
 Locked: **Yes**
 Author: **Bird, Brian** (brian.bird@gccaz.edu)
 Last Saved: **May 1, 2018 09:47 AM MST**
 Permission: **Protected**
 Randomization: **Person**
 Which graded: **Last**

Feedback Settings

Before due date
 Question Score
 Assignment Score
 Publish Essay Scores
 Question Part Score
 Mark
 Add Practice Button
 Help/Hints
 Response
 Save Work
 After due date
 Question Score
 Assignment Score
 Publish Essay Scores
 Key
 Question Part Score

- Solution
- Mark
- Add Practice Button
- Help/Hints
- Response