

QUESTION 1



Select the correct answer.

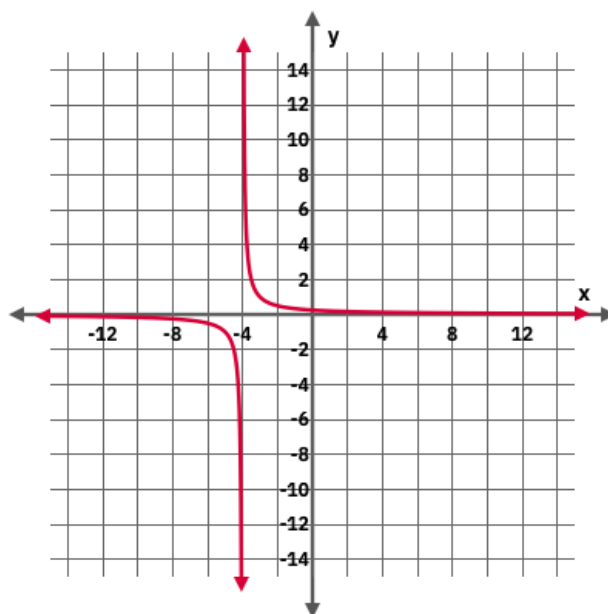
Use the graph to evaluate

$$\lim_{x \rightarrow -4} \frac{1}{x+4}$$

.

$$\lim_{x \rightarrow -4} \frac{1}{x+4} =$$

does not exist ✓ ▼



QUESTION 2



Select the correct answer.

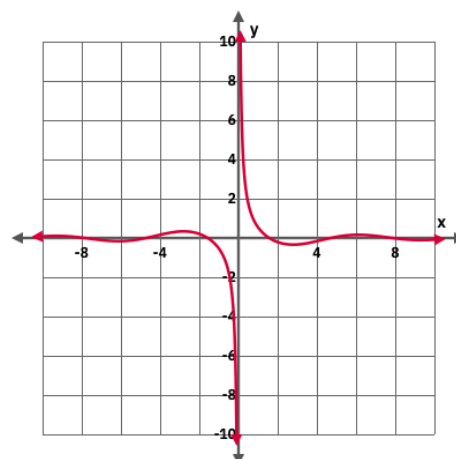
Evaluate

$$\lim_{x \rightarrow 0} \frac{\cos x}{x}$$

.

$$\lim_{x \rightarrow 0} \frac{\cos x}{x} =$$

does not exist ✓ ▼



QUESTION 3



Select your answer from the drop-down menu.

Evaluate the limit of

$$f(x)$$

as

$$x$$

approaches 1, where

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

.

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

1 ✓ ▼

QUESTION 4



Choose the correct answer.

The distance

$$s(t)$$

traveled by an object in meters, dropped from a certain height, as a function of time t in seconds, is given by

$$s(t) = 5t^2$$

.

The instantaneous speed at

$$t$$

= 1 second is defined as

$$\lim_{t \rightarrow 1} \frac{s(t) - s(1)}{t - 1}$$

.

Find the instantaneous speed at

$$t$$

= 1 second.

☐ 0

☐ does not exist

☐ 5



10



QUESTION 5



Choose the correct answer.

Find the limit of

$$f(x)$$

as

x

approaches 6, where

$$f(x) = \frac{x^2 - 36}{x - 6}$$

.



The limit does not exist.



6



-6



12



QUESTION 6



Fill in the blank with the correct answer.

Evaluate

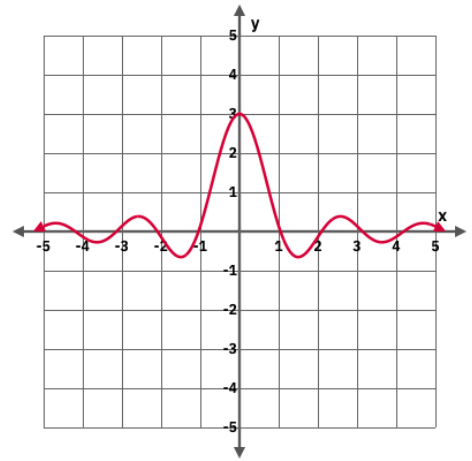
$$\lim_{x \rightarrow 0} \frac{\sin 3x}{x}$$

.

$$\lim_{x \rightarrow 0} \frac{\sin 3x}{x} =$$

3





QUESTION 7



Fill in the blank with the correct answer.

If

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

and

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

, then

$$\lim_{x \rightarrow b} f(x) =$$



QUESTION 8



Choose the correct answer from the drop-down menu.

Sketch the graph of

$$f(x) = \begin{cases} x^2 + 4 & , x < 0 \\ \sqrt{x} & , x \geq 0 \end{cases}$$

and determine each limit.

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



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

0 ✓ ▼

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

does not exist ✓ ▼

QUESTION 9



Fill in the blank with the correct answer.

The tax rate schedule

$$T(x)$$

, on an

x

dirhams income, is modeled by the piecewise function below:

$$T(x) = \begin{cases} 0.2x & \text{For } 0 \leq x < 20,000 \\ 0.35x - a & \text{For } 20,000 \leq x \end{cases}$$

For the tax rate schedule to be fair, a limit at

$$x = 20,000$$

should exist.

The rate schedule becomes fair if the value of

a

is

3000



QUESTION 10



Alia and Hamda were asked what conclusions they could draw if

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

and

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

both exist?

Hamda's Conclusion

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

Alia's Conclusion

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

A necessary condition for the existence of

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

is that

$$f(c)$$

exists.



None is right.



Hamda is right

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

exists if the one-sided limits exist and



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

.



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

exists if



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

.



Alia is right

QUESTION 11



Choose the correct answer.

Suppose

$$\lim_{x \rightarrow a^-} g(x) = -1, \quad \lim_{x \rightarrow a^+} g(x) = 1$$

.

What is the value of

$$\lim_{x \rightarrow a} g(x)$$

?

☐ $+\infty$

☐ -1

☒ The limit does not exist.



☐ 1

QUESTION 12



Fill in the blank with the correct answer.

Give the truth value of each statement. Fill in the spaces provided "T" for true and "F" for false.

For any two functions f and g such that $f(1) = 0$ and $g(1) \neq 0$, the limit $\lim_{x \rightarrow 1} \frac{f(x)}{g(x)}$ should be zero.	☒ F
For any two functions f and g such that $f(1) = 0$ and $g(1) = 0$, the limit $\lim_{x \rightarrow 1} \frac{g(x)}{f(x)}$ should not exist.	☒ F

QUESTION 13



Drag and drop the correct answer into the spaces provided.

Use the graph of

$f(x)$

to find the limits of the function.

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

$x \rightarrow 1^-$

-3



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

$x \rightarrow 1^+$

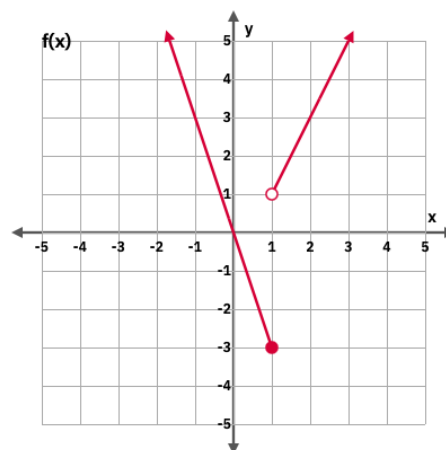
1



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

$x \rightarrow 1$

does not exist



-1

3

$+\infty$

QUESTION 14



Fill in the blank with the correct answer.

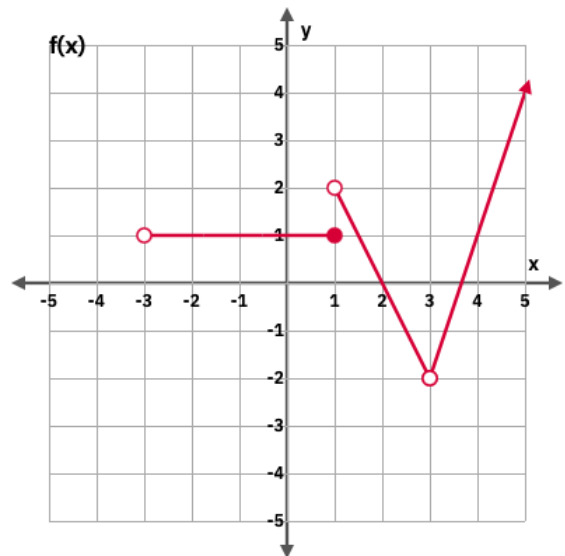
Use the graph of

$f(x)$

to find the limit.

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

-2



QUESTION 15



Drag and drop the correct answer into the space(s) provided.

Use the graph to determine the one- and two-sided limits of the function, if they exist.

$$\lim_{x \rightarrow 2^-} g(x) =$$

8



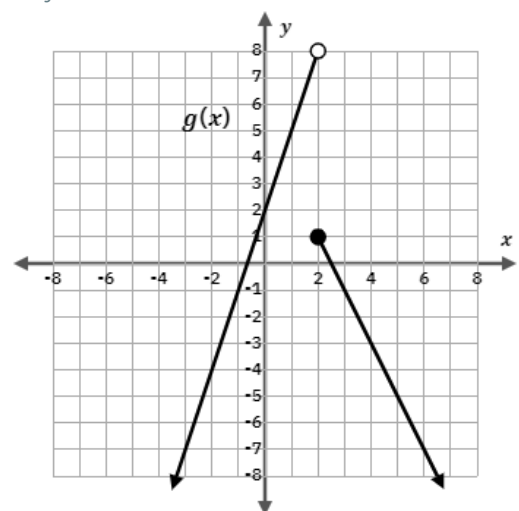
$$\lim_{x \rightarrow 2^+} g(x) =$$

1



$$\lim_{x \rightarrow 2} g(x) =$$

Does not exist



$+\infty$

-2

$-\infty$

0