

This key should allow you to understand why you choose the option you did (beyond just getting a question right or wrong). More instructions on how to use this key can be found [here](#).

If you have a suggestion to make the keys better, please fill out the short survey [here](#).

Note: This key is auto-generated and may contain issues and/or errors. The keys are reviewed after each exam to ensure grading is done accurately. If there are issues (like duplicate options), they are noted in the offline gradebook. The keys are a work-in-progress to give students as many resources to improve as possible.

71. Evaluate the one-sided limit of the function $f(x)$ below, if possible.

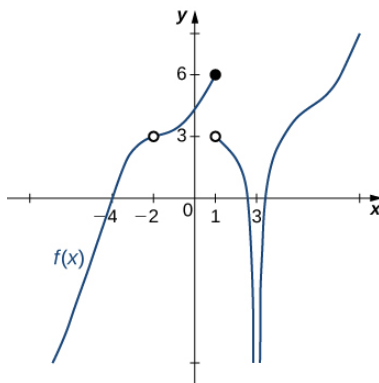
$$\lim_{x \rightarrow 5^+} \frac{-4}{(x+5)^8} + 4$$

The solution is $f(5)$

- A. ∞
- B. $f(5)$
- C. $-\infty$
- D. The limit does not exist
- E. None of the above

General comments: You should be able to graph the rational function displayed. If not, go back to Module 7 to learn about the general shape of rational functions.

72. For the graph below, evaluate the limit: $\lim_{x \rightarrow -2} f(x)$.



The solution is 3

- A. 3
- B. $-\infty$
- C. -2
- D. The limit does not exist
- E. None of the above

General Comments: Remember that the limit does not exist if the left-hand and right-hand limits do not match.

73. Evaluate the limit below, if possible.

$$\lim_{x \rightarrow 6} \frac{\sqrt{9x - 5} - 7}{8x - 48}$$

The solution is 0.080

A. 0.080

* This is the correct option.

B. 0.375

You likely tried to use a shortcut to find the limit of a function that only works for when the numerator/denominator are polynomials.

C. 0.071

You likely memorized how to solve the similar homework problem and used the same formula here.

D. ∞

You likely believed that since the denominator is equal to 0, the limit is infinity.

E. None of the above

If you got a limit that does not match any of the above, please contact the coordinator.

General comments: It is difficult to imagine the graph of this function, so you need to test values close to $x = 6$.

74. Based on the information below, which of the following statements is always true? $f(x)$ approaches 11.009 as x approaches 2. The solution is $f(x)$ is close to or exactly 11.009 when x is close to 2

A. $f(x)$ is close to or exactly 11.009 when x is close to 2

B. $f(x) = 11.009$ when x is close to 2

C. $f(x)$ is close to or exactly 2 when x is close to 11.009

D. $f(x) = 2$ when x is close to 11.009

E. None of the above are always true.

General comments: The limit tells you what happens as the x -values approach 2. It says **absolutely nothing** about what is happening exactly at $f(x)$!

75. To estimate the one-sided limit of the function below as x approaches 6 from the right, which of the following sets of numbers should you use?

$$\frac{\frac{6}{x} - 1}{x - 6}$$

The solution is {6.1000, 6.0100, 6.0010, 6.0001}

A. {6.1000, 6.0100, 6.0010, 6.0001}

This is correct!

B. {6.0000, 5.9000, 5.9900, 5.9990}

If we get $\frac{0}{0}$ or $\frac{\infty}{\infty}$, the value 6 doesn't help us estimate the limit.

C. {6.0000, 6.1000, 6.0100, 6.0010}

If we get $\frac{0}{0}$ or $\frac{\infty}{\infty}$, the value 6 doesn't help us estimate the limit.

D. {5.9000, 5.9900, 5.9990, 5.9999}

These values would estimate the limit of 6 on the left.

E. {5.9000, 5.9900, 6.0100, 6.1000}

These values would estimate the limit at the point and not a one-sided limit.

General Comments: To evaluate a one-sided limit, we want to put numbers close to the limit. We can't use the limit value itself if it results in $\frac{0}{0}$ or $\frac{\infty}{\infty}$
